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Economic Brief with Respect to the
Proposed Milk Marketing Agreement and Proposed Order
for the
District of Columbia Marketing Area

by

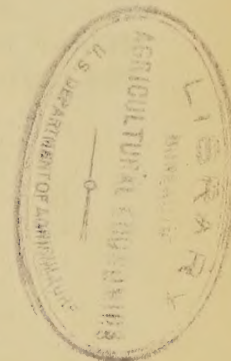
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Paper No. 9, Series on Marketing Agreements and Orders, Dairy
Section, Agricultural Adjustment Administration, United States
Department of Agriculture, June 30, 1936.

INTRODUCTION

The proposed marketing agreement and proposed order has for its purpose that of increasing returns to producers of milk for the District of Columbia by establishing and maintaining better marketing conditions. The main provisions of the proposed marketing agreement and proposed order are:

1. The classification of milk into two types of uses made by handlers.
2. The fixing of the prices to be paid to producers by handlers for milk used in each class.
3. The apportionment of the proceeds of the sale of milk to handlers by pooling all the proceeds of sales to all handlers and the payment to producers according to a base-rating plan.

All these provisions have been used in the market to some extent since 1924. The prices proposed are those that now prevail in the market.

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Part I

Economic Conditions of the Dairy Farmers Supplying Milk and Cream to the District of Columbia Marketing Area

So much has been written on the dire conditions of agriculture that it needs hardly be pointed out that the dairy farmers did not escape the fate of all other types of farmers. Before looking specifically at the economic situation of the dairy farmers supplying milk to the District of Columbia it would be wise, and, in fact, necessary, to review the conditions of the dairy industry in the country as a whole. Such a review is necessary, for it was because the dairy farmers as a whole were in poor financial shape that milk and its products were included in the Agricultural Adjustment Act, as amended, as being a commodity for which some aid must be given in stabilizing marketing conditions. The condition of the dairy farmers supplying milk to the District of Columbia reflects the condition of dairy farmers in the rest of the country.

Throughout the country a wide disparity existed between the price received by farmers for dairy products and the price paid by farmers for commodities purchased during the period 1929 to 1933. In the year 1933 the price received by farmers for milk sold wholesale ^{1/} had declined to a point 49.2 percent below that received in 1929. (See Table 1.)

With such a sharp decrease in prices, added to the fact that milk prices had not fallen to the same extent as had the price of other agricultural products, farmers attempted to maintain their income by producing more milk. From January 1, 1929 to January 1, 1933, the number of cows and heifers in the United States increased until the number of cows milked in 1933 was the highest on record. Total production of milk in the United States increased from 98,782,000,000 pounds in 1929 to 102,309,000,000 pounds, or nearly 4 percent.

Despite the increase in production (and probably because of it) the gross income from milk produced on farms in the United States declined from \$2,322,553,000 in 1929 to \$1,262,554,000 in 1933, a decline of 45.6 percent. (See Table 3.) Cash income from dairy products ^{2/} sold from farms in the United States in this same period declined from \$1,847,235,000 to \$988,880,000, or 46.5 percent. (See Table 3.)

^{1/} Price paid for all milk sold as whole milk.

^{2/} Cash income, as distinguished from gross income, excludes the value of products consumed in the household on the farm where produced.

Table 1: UNITED STATES: Average wholesale prices received by farmers for all milk sold per cwt., 1909-1936 (revised). 1/

Compiled from "Crops and Markets", Bureau of Agricultural Economics, Division of Crop & Livestock Estimates.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Weighted	Simple
	15	15	15	15	15	15	15	15	15	15	15	15	average	average
	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.	Dolls.
1909	1.82	1.77	1.69	1.77	1.68	1.69	1.68	1.66	1.72	1.75	1.80	1.85	1.75	1.74
1910	1.82	1.77	1.72	1.69	1.67	1.64	1.67	1.69	1.73	1.75	1.77	1.80	1.73	1.72
1911	1.82	1.85	1.87	1.80	1.77	1.77	1.77	1.69	1.72	1.70	1.74	1.77	1.71	1.82
1912	1.90	1.86	1.87	1.85	1.83	1.83	1.84	1.79	1.79	1.85	1.89	1.91	1.82	1.87
1913	1.90	1.88	1.86	1.85	1.80	1.80	1.81	1.80	1.85	1.88	1.95	1.93	1.86	1.85
1914	1.91	1.91	1.85	1.85	1.87	1.80	1.87	1.82	1.85	1.87	1.88	1.89	1.85	1.86
1915	1.90	1.85	1.86	1.83	1.85	1.83	1.82	1.83	1.88	1.87	1.88	1.90	1.85	1.90
1916	2.09	2.13	2.11	2.17	2.24	2.20	2.18	2.26	2.35	2.52	2.58	2.65	2.28	2.29
1917	2.71	2.74	2.73	2.69	2.66	2.68	2.64	2.73	2.77	2.95	3.01	3.03	2.77	2.78
1918	3.11	3.06	3.05	3.01	2.97	3.03	3.06	3.14	3.19	3.27	3.39	3.48	3.13	3.15
1919	3.51	3.52	3.43	3.46	3.38	3.33	3.34	3.42	3.43	3.49	3.47	3.35	3.42	3.43
1920	3.22	3.14	3.07	2.98	2.78	2.70	2.64	2.65	2.66	2.74	2.76	2.73	2.83	2.84
1921	2.65	2.59	2.56	2.48	2.38	2.45	2.43	2.48	2.54	2.56	2.57	2.69	2.52	2.53
1922	2.79	2.81	2.75	2.75	2.65	2.70	2.64	2.70	2.81	2.98	3.02	2.92	2.78	2.79
1923	2.86	2.84	2.75	2.50	2.40	2.40	2.29	2.18	2.35	2.43	2.45	2.55	2.49	2.50
1924	2.48	2.55	2.62	2.48	2.47	2.47	2.45	2.55	2.50	2.73	2.69	2.65	2.55	2.56
1925	2.74	2.68	2.56	2.46	2.39	2.35	2.40	2.37	2.47	2.46	2.60	2.61	2.50	2.51
1926	2.68	2.64	2.55	2.58	2.51	2.44	2.40	2.36	2.48	2.55	2.56	2.64	2.52	2.53
1927	2.67	2.69	2.61	2.51	2.49	2.45	2.45	2.46	2.56	2.60	2.63	2.65	2.55	2.56
1928	2.64	2.64	2.63	2.59	2.53	2.47	2.46	2.50	2.52	2.55	2.59	2.60	2.57	2.56
1929	2.53	2.44	2.38	2.35	2.28	2.22	2.15	2.18	2.25	2.30	2.31	2.20	2.26	2.30
1930	2.04	1.96	1.92	1.85	1.73	1.66	1.62	1.64	1.70	1.72	1.73	1.67	1.70	1.77
1931	1.56	1.49	1.43	1.39	1.29	1.17	1.20	1.21	1.25	1.28	1.26	1.26	1.29	1.32
1932	1.25	1.16	1.10	1.08	1.14	1.21	1.33	1.39	1.47	1.51	1.51	1.49	1.29	1.30
1933	1.44	1.48	1.50	1.46	1.45	1.46	1.49	1.51	1.55	1.59	1.65	1.69	1.52	1.52
1934	1.76	1.81	1.78	1.78	1.71	1.59	1.55	1.58	1.63	1.66	1.78	1.86	1.71	1.71
1935	1.95	1.95	1.828	1.742	1.658									
1936														
1937														

1/ Prices are interpolated for November 1912, January to November 1914, and August 1919.

Table 2: Gross Income from milk produced on farms in the United States and in specified states, and percentage decline from 1929 in such gross income.

Year	United States		Maryland		Virginia		West Virginia	
	Gross Income	Percent decline from 1929	Gross Income	Percent decline from 1929	Gross Income	Percent decline from 1929	Gross Income	Percent decline from 1929
	1,000 Dollars		1,000 Dollars		1,000 Dollars		1,000 Dollars	
1929	2,322,553	-	25,156	-	35,291	-	22,942	-
1930	2,030,853	12.6	23,401	7.0	29,928	15.2	20,990	8.5
1931	1,614,394	30.5	19,945	20.7	27,068	23.3	17,812	22.4
1932	1,260,424	45.7	16,875	32.9	23,064	34.6	15,451	32.7
1933	1,262,554	45.6	15,783	37.3	19,993	43.3	14,130	38.4
1934	1,421,253	38.8	18,872	25.0	22,434	36.4	15,330	33.2

Compiled from reports of the Bureau of Agricultural Economics, Division of Crop and Livestock Estimates.

Table 3 -- Cash Income from dairy products sold from farms in the United States and in specified states, and percentage decline from 1929 in such cash income.

Year	United States		Maryland		Virginia		West Virginia	
	Cash Income	Percent decline from 1929	Cash Income	Percent decline from 1929	Cash Income	Percent decline from 1929	Cash Income	Percent decline from 1929
	1,000 Dollars		1,000 Dollars		1,000 Dollars		1,000 Dollars	
1929	1,847,235	-	21,281	-	18,311	-	12,111	-
1930	1,615,363	12.6	19,694	7.5	14,992	18.1	10,936	9.7
1931	1,278,531	30.8	16,733	21.4	13,731	25.0	9,477	21.7
1932	985,099	46.7	14,045	34.0	11,423	37.6	7,956	34.3
1933 ^{1/}	988,880	46.5	13,125	38.3	9,904	45.9	7,032	41.9
1934 ^{1/}	1,114,016	39.7	15,655	26.4	11,217	38.7	7,687	36.5

Compiled from reports of the Bureau of Agricultural Economics, Division of Crop and Livestock Estimates.

^{1/} Includes benefit payments and Government purchases.

When one realizes that the income from dairying represents over one-fifth of the total agricultural income of the United States, he must realize the significance of this drastic reduction of income, not only to dairy farmers but to all people in the country. With this large part of the consumers of industrial goods in serious economic distress and their demand for such goods drastically curtailed, the income of people in industrial centers was bound to be curtailed.

The decline in the price paid by farmers for commodities purchased did not show the same sharp drop. In 1933 the index of prices paid by farmers, including taxes and interest, was only 28.8 percent below that which prevailed in 1929. Industries generally had pretty well maintained their prices through curtailing production in contrast with farmers whose economy is such that without public assistance, falling prices only tend to induce desperate efforts to maintain income by increasing supplies.

Farmers probably better than any other group can maintain their production in an attempt to maintain their income, but, with continuing low prices, there soon must be a break. Farmers cannot continue to produce without receiving an adequate return for their labor.

The incomes especially in the dairy industry had declined not only from the general reduction in purchasing power of consumers but also because of unstabilized marketing conditions. Milk has peculiar characteristics which are conducive to creating unstabilized markets. It was to provide some means of correcting these unstable conditions so that the returns to farmers might be increased that the dairy program of the Agricultural Adjustment Administration was presented, and such is still its purpose and aim.

The amount of milk used for fluid milk and cream represents about 50 percent of all the milk produced by farmers in the United States and the income therefrom represents a considerably larger percentage of the total income from the sale of dairy products. One of the first types of dairy farmers to request aid was the fluid milk producer. A number of milk marketing agreements and licenses were issued under the Agricultural Adjustment Act, passed in 1933. This type of program was outlined more specifically in the Agricultural Adjustment Act, as amended, in 1935 and the licensing provision in the original act was revised so that now marketing agreements and orders are issued.

Looking more specifically at the conditions of dairy farmers supplying milk to the District of Columbia, it is found that they, too, suffered the effects of the depression. The farm price of milk sold wholesale in Maryland and Virginia, the two principal sources of milk for the District of Columbia, (some milk also being produced in West Virginia) declined, in the period 1929 to 1933, from \$3.66 and \$2.88 per hundredweight, respectively, to \$2.00 and \$1.59, respectively. (See tables 4 and 5.)

Table 4. MARYLAND: Milk, whole (Wholesale) farm price for all milk sold per hundredweight
1909-1936

Compiled from reports of the Bureau of Agricultural Economics, Division of Crop and Livestock Estimates											
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Aver.
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1909	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.98	2.21	2.21	2.06
1910	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.06
1911	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	1.99
1912	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.08
1913	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.09
1914	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.10
1915	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1916	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1917	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1918	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1919	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1920	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1921	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1922	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1923	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1924	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1925	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1926	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1927	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1928	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1929	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1930	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1931	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1932	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1933	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1934	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1935	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13
1936	2.21	2.21	2.21	1.86	1.86	1.86	1.86	1.86	2.21	2.21	2.13

Table 5. VIRGINIA: Milk, whole (wholesale) - Average price received by farmers for all milk sold.

Compiled from reports of the Bureau of Agricultural Economics, Division of Dairy and Poultry Products											
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Aver.
Cents per Gallon											
1910	21	23	22	24	22	22	19	22	21	23	22
1911	25	25	21	21	22	22	21	20	23	21	22
1912	23	23	22	23	24	24	24	23	22	23	23
1913	23	23	23	24	25	23	24	23	22	23	23
1914	-	-	-	-	-	-	-	-	-	-	-
1915	22	23	22	22	21	20	21	21	21	22	22
1916	24	21	21	22	23	22	20	21	23	23	22
1917	23	23	25	24	24	26	24	23	29	30	26
1918	29	29	29	30	30	30	30	29	32	35	31
1919	32	32	32	34	36	34	31	34	36	36	34
1920	40	40	37	41	36	36	36	38	34	39	37
1921	38	35	35	28	26	27	30	28	28	28	30
1922	26	26	25	24	24	22	25	25	24	25	25
1923	33	31	28	30	29	29	29	29	-	-	-
Dollars per cwt.											
1923	3.00	3.20	2.30	3.20	3.00	3.00	2.80	2.72	3.30	3.23	3.50
1924			2.90	2.70	2.57	2.25	2.25	2.16	2.73	3.00	2.50
1925			2.70	2.80	2.48	2.39	2.30	2.16	2.25	2.75	2.49
1926	2.91	2.96	2.90	2.80	2.80	2.80	2.50	2.40	2.50	2.35	2.50
1927	2.60	2.70	2.70	2.70	2.80	2.80	2.80	2.90	2.50	2.70	2.80
1928	3.10	3.20	3.00	3.00	2.75	2.75	2.80	2.90	3.15	3.00	3.10
1929	2.95	2.90	2.95	2.95	2.95	2.95	2.80	2.80	2.70	2.90	2.90
1930	2.80	2.80	2.55	2.75	2.75	2.50	2.50	2.55	2.70	2.60	2.60
1931	2.55	2.35	2.15	2.25	2.20	2.00	2.05	2.00	2.10	2.10	2.20
1932	2.00	2.00	2.10	1.90	1.85	1.80	1.80	1.85	1.85	1.85	1.70
1933	1.70	1.70	1.55	1.55	1.50	1.50	1.45	1.45	1.55	1.65	1.80
1934	1.85	1.80	1.80	1.75	1.80	1.95	1.80	1.80	1.90	2.00	1.80
1935	1.95	2.05	2.00	2.00	2.00	1.85	1.90	1.90	2.00	2.05	2.05
1936	2.15	2.30	2.15	2.10	1.90				2.00	2.05	2.15

In this area too, production first increased from 1929 to 1930, probably in an attempt of farmers to maintain their income. The increase in production was not sufficient for farmers to maintain their income, and the continuance of low prices caused them to curtail production. In 1933, however, production was still above that of 1929.

Despite the increase in production the gross and cash income from dairy products had declined in both States from 1929 to 1933. In Maryland, gross income had declined from \$25,156,000 to \$15,783,000, or 37.3 percent. Cash income showed a drop of from \$21,281,000 to \$13,125,000, or 38.3 percent. In Virginia, gross income declined from \$35,291,000 to \$19,993,000, or 43.3 percent, and cash income from \$18,311,000 to \$9,904,000, or 45.9 percent.

The dairy enterprise is of great importance to the farmers in both Maryland and Virginia. In Maryland 30,730 farms reported cows milked in 1929, and 13 percent of these farms received more than 40 percent of their income from the dairy enterprise. In Virginia 128,405 farms reported cows milked, and 2 percent received more than 40 percent of their income from the dairy enterprise. In Maryland the cash income from dairy products in 1934 represented 28.3 percent, and in Virginia 11 percent of the total cash income to all farmers in the State. (See table 6.)

The decline in the economic condition of the dairy farmer in these two States was caused in part by the widespread economic depression which had reduced all prices which consumers were willing to and could pay. The bottom of the depression for dairy farmers appears to have been reached in 1932 or 1933 and since that time the financial condition of dairy farmers has improved somewhat. It would not be without foundation to say that much of the betterment of dairy farmers is due to the dairy program of the Agricultural Adjustment Administration. The regulation of numerous fluid milk markets in the country, the stabilization program in the butter and cheese market, and the regulation of several manufactured dairy products have been very effective in establishing such widespread marketing conditions in the industry that all dairy farmers have benefited.

Furthermore, the general economic situation of the country has been on the upgrade since 1933. Consumers have been willing and able to pay more for their dairy products.

The dairy producers in this area supplying milk to the District of Columbia have shared in the general benefit of these bettered conditions. The weighted average price received by these producers through their cooperative association after having fallen from 32.5 cents per gallon in 1929 to 24.56 cents per gallon of 4.0 percent milk in 1933, increased to 24.94 cents in 1934 and to 25.42 cents in 1935. (See Table 7.)

Table 6: Cash Income from all farm products and percentage cash income from dairy products was of cash income from all farm products, 1929-1934.

Year	United States			Maryland			Virginia			West Virginia		
	Cash Income	Percent cash in-come from dairy products is of total cash in-come		Cash Income	Percent cash in-come from dairy products is of total cash in-come		Cash Income	Percent cash in-come from dairy products is of total cash in-come		Cash Income	Percent cash in-come from dairy products is of total cash in-come	
	1,000 Dollars			1,000 Dollars			1,000 Dollars			1,000 Dollars		
1929	10,284,479	18.0		86,025	24.7		156,250	11.7		51,629	23.5	
1930	7,987,606	20.2		63,454	31.0		104,087	14.4		38,707	28.3	
1931	5,795,148	22.1		52,340	32.0		82,663	16.6		34,661	27.3	
1932	4,368,296	22.6		41,166	34.1		61,874	18.5		24,255	32.8	
1933 ^{1/}	5,402,094	18.3		45,923	28.6		78,356	12.6		26,078	27.0	
1934 ^{1/}	6,261,123	17.8		55,226	28.3		101,671	11.0		29,829	25.8	

Compiled from reports of the Bureau of Agricultural Economics, Division of Crop and Livestock Estimates.

^{1/} Includes benefit payments and Government purchases.

However, this average price received in 1935 was still 21.8 percent below the price received in 1929. Production has increased somewhat in 1934 and 1935 over that produced in 1933 but is still below that produced in 1929. It is evident that the producers supplying milk and cream to the District of Columbia Marketing Area have not been relieved of all their financial difficulties, and a program directed specifically to establishing more stabilized marketing conditions in the District of Columbia would increase the prices received by them. It is the purpose of the proposed marketing agreement and proposed order to increase returns to these producers by establishing better marketing conditions for milk in their market.

Part II

Comparison of the Prices Specified in the
Proposed Marketing Agreement and Proposed Order
for the
District of Columbia Marketing Area
with
Parity Prices for Milk in that Market

Section 2 of the Agricultural Adjustment Act, as amended, states that it is the declared policy of Congress "(1) Through the exercise of the powers conferred upon the Secretary of Agriculture under this title, to establish and maintain such balance between the production and consumption of agricultural commodities, and such marketing conditions therefor, as will reestablish prices to farmers at a level that will give agricultural commodities a purchasing power with respect to articles that farmers buy, equivalent to the purchasing power of agricultural commodities in the base period; and, in the case of all commodities for which the base period is the pre-war period, August 1909 to July 1914, will also reflect current interest payments per acre on farm indebtedness secured by real estate and tax payments per acre on farm real estate, as contrasted with such interest payments and tax payments during the base period. The base period in the case of all agricultural commodities, except tobacco and potatoes, shall be the pre-war period, August 1909 to July 1914. In the case of tobacco and potatoes, the base period shall be the post-war period, August 1919 to July 1929."

In section 8(e) of the Agricultural Adjustment Act, as amended, it is provided that "In connection with the making of any marketing agreement or the issuance of any order, if the Secretary finds and proclaims that, as to any commodity specified in such marketing agreement or order, the purchasing power during the base period specified for such commodity in section 2 of this title cannot be satisfactorily determined from available statistics of the Department of Agriculture, the base period, for the purposes of such marketing agreement or order, shall be the post-war period, August 1919 to July 1929, or all that portion thereof for which the Secretary finds and proclaims that the purchasing power of such commodity can be satisfactorily determined from available statistics of the Department of Agriculture."

In the case of milk produced for sale in the District of Columbia such milk has been sold on other than a flat price basis only since 1924 so that there are no available statistics for the computation of parity prices on a class use basis except since the year 1924. Hence parity prices have been computed from available statistics in the Department of Agriculture with respect to the period August 1924-July 1929 inclusive.

On this market handlers have for a long period paid a premium for milk produced under certain sanitary standards established by the Health Department of the District of Columbia. These premiums were paid in addition to the quoted prices for milk during the base period and up to February 1935. (See also Part IV.) In that month a change was made by the cooperative association in the method of pricing milk to handlers. The association at that time took the responsibility of paying the premiums to the producers and charged all its handlers \$3.08 per hundredweight for all the milk accepted by handlers from members and not returned to the association. The price of \$3.08 therefore included all payments for premiums and the association guaranteed to each of its handlers that the quality of milk received by the handlers would be at least of average quality. Previous to this time, in 1934 the handlers had paid \$3.02 per hundredweight for base milk retained by them and, in addition, had paid the premiums.

Consequently, in order to obtain a price series which is comparable with the average quality of milk now produced for sale in the market, the weighted average premiums paid in January of this year must be added to the price quoted for the base period, which price does not include premiums. The weighted average premium paid to producers in January 1936 was \$0.34 per hundredweight. (See Tables 8 and 9.) Thus handlers paid, for a quality of milk comparable to the quality of milk for which handlers now pay \$3.08, a price of \$3.75 plus \$0.34 or \$4.09 per hundredweight.

During the period from 1929 to May 1936 the prices paid by farmers for commodities purchased declined 21.7 percent so that, with the same amount of money received in the base period, farmers could now purchase 21.7 percent more goods. The parity price is that price which would allow producers to purchase the same amount of goods as purchased in the base period. Consequently, the parity price for Class I milk in May 1936 was 21.7 percent below the average price received in the base period, or \$3.20 per hundredweight ($\4.09×78.3). (See Table 10.)

Table 8: Percentage Distribution of Base Deliveries from farms with Specified Health Department Scores, month of January in specified years.

	1924	1925	1926	1927	1928	1929	Average 1924-1929	1936
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Under 80.0	27.9	18.5	4.9	2.1	4.9	2.0	9.4	0.9
80.0 - 84.9	22.1	32.2	22.8	14.4	11.9	12.1	17.9	2.0
85.0 - 89.9	33.5	31.1	55.8	54.0	51.6	45.2	45.8	6.9
90.0 - 94.9	16.5	18.2	16.5	28.8	31.0	37.6	26.1	22.6
95.0 - 97.9	0.0	0.0	0.0	0.7	0.6	3.1	0.8	37.3
Over 97.9 & Cattle 99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Maryland and Virginia Milk Producers' Association

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Table 9: Weighted average for all milk, of premium paid by dealers for base deliveries from farms with Health Department Scores in each year 1924-1936.

Year	Premium	
	<u>Cents per Gal.</u>	<u>Per Cwt.</u>
1924	1.417	16.4
1925	1.300	15.1
1926	1.748	20.3
1927	1.620	18.8
1928	1.588	18.4
1929	1.803	20.9
Total 1924 - '29	1.5901	18.4
1930	1.889	21.9
1931	1.992	23.1
1932	2.146	24.9
1933	2.600	30.2
1934	2.780	32.2
1935	2.790	32.4
1936	2.897	33.6

Maryland and Virginia Milk Producers' Association.

Table 10 - WASHINGTON, D. C.: Index of prices paid by farmers for commodities bought, prices paid by handlers for Class I 4% milk per cwt. and parity prices, average August 1924-July 1929, by years 1930-1935 and by months for 1936.

Year and Month	Index of prices paid by farmers for commodities bought	Parity price for milk of comparable quality	Paid by Handlers for 4% Class I milk f.o.b. City
	<u>Percent</u>	<u>Dollars</u>	<u>Dollars</u>
August 1924			
July 1929	100.0	4.09 <u>1/</u>	3.75
1930	93.9	3.84	3.84
1931	80.3	3.28	3.67
1932	69.3	2.83	3.30
1933	70.6	2.89	3.07
1934	79.6	3.26	3.02
1935	80.9	3.31	3.08 <u>2/</u>
1936			
January	79.0	3.23	3.08 <u>2/</u>
February	79.0	3.23	3.08 <u>2/</u>
March	78.3	3.20	3.08 <u>2/</u>
April	78.3	3.20	3.08 <u>2/</u>
May	78.3	3.20	3.08 <u>2/</u>
June			
July			
August			
September			
October			
November			
December			

1/ Includes weighted average premium paid in 1936

2/ Price including weighted average premium shown on Table 9.

Part III

Character of the Commerce in Milk in the District of Columbia Marketing Area

Conditions existing among the dairymen in the area supplying milk to the District of Columbia threaten both the quantity and quality of the supply of the area. And since the entire supply for sale in the District of Columbia is brought into the area from across State lines the handling of this milk is wholly in interstate commerce.

More than 75 percent of the 21,877,487 gallons of milk brought into the District of Columbia by handlers purchasing through the cooperative association in 1935 was produced in the two counties of Frederick and Montgomery in Maryland and the three counties of Fairfax, Loudoun, and Fauquier in Virginia. The remaining 25 percent was produced in the more distant counties of Virginia and Maryland, and some little in West Virginia. There are a few dairy cows in the District of Columbia owned by public organizations for their own use. The members of the Maryland and Virginia Milk Producers Association, who produced about 90 percent of all the milk for the marketing area, in 1935 produced 12,751,131 gallons, or 58.3 percent of all milk of the Association in Virginia; 8,969,121 gallons, or 41 percent, in Maryland; and 157,235 gallons, or .7 percent, in West Virginia. (See Table 11.) Some of the handlers purchasing through the association buy milk from producers located in all three of the States and only one buys his milk exclusively in one State. In 1933 the association had 583 of its producers located in Virginia, 531 in Maryland, and 14 in West Virginia.

There is also brought into the District of Columbia cream produced in the Middle West, mainly in the States of Wisconsin and Minnesota, for use in ice cream manufacture. This cream is in direct competition with the market of all milk not used as fluid milk and cream and the price of it affects and is affected by the price paid to the producers regularly delivering milk to the marketing area.

Table 11. Total production, by states, of members of the Maryland and Virginia Milk Producers' Association, 1933-1935 and the number of members by states in 1933. /1

State	Number of Producers	1 9 3 3		1 9 3 4		1 9 3 5	
		Gallons	Percent	Gallons	Percent	Gallons	Percent
Virginia	583	12,146,484	58.7	12,744,375	59.6	12,751,131	58.3
Maryland	531	8,352,744	40.4	8,494,617	39.7	8,969,121	41.0
West Virginia	14	175,882	0.9	154,599	0.7	157,235	0.7
Total	1,128	20,675,110	100.0	21,393,591	100.0	21,877,487	100.0

/1 Includes all member production for which brokerage was collected.

Maryland and Virginia Milk Producers Association.

Part IV

The Classification and Prices of Milk Provided
by the Proposed Marketing Agreement and Proposed Order

A general discussion of the price structure for milk is set forth in Technical Paper No. 1 published by the Dairy Section of the Agricultural Adjustment Administration. ^{3/} In the paper it is shown that the classified price plan of selling milk to distributors develops from the competition among distributors to receive an even supply of milk, or rather, a supply of milk that is closely related to such distributors requirements for milk for fluid milk trade. Those producers whose deliveries of milk are most uniform from season to season will tend to become associated with the fluid milk distributors. The paper also shows how differences in (1) cost of transporting a unit of milk in fluid form and the product equivalent of a unit of fluid milk, and (2) varying sanitation requirements applicable to milk produced for use as fluid milk and milk produced for use in manufactured dairy products affect the differential between the prices of milk used for different purposes.

A. Provisions of the proposed marketing agreement and proposed order.

Two classes of milk are defined in the proposed marketing agreement and proposed order, namely:

All milk or cream received by each handler from producers or an association of producers shall be Class I milk except that milk which is handled so as to be classified in Class II pursuant to the definition of Class II in the proposed marketing agreement and order.

Class II milk is defined as any milk or cream received by any handler from producers or associations of producers which is sold to Maryland and Virginia Milk Producers Association or to a person who is a manufacturer of ice cream sold at wholesale, provided that such handler has given the Market Administrator reasonable opportunity to inspect such milk or cream prior to such sale and presents on or before the date for filing reports a sworn invoice of such sale in the form as prescribed by the Market Administrator.

The classification and price provided in the proposed marketing agreement and order relative to milk produced for sale in the marketing area appear adequate and reasonable to secure an adequate supply of high quality milk in light of the facts relative to the supply and demand conditions and to the sales and uses of milk in the District of Columbia Marketing Area. Such facts and considerations are set forth in detail in the following pages.

^{3/} See Appendix A.

B. Use classification.

The classification plan for selling milk to handlers is one of long standing. Some such plan was in effect in the Boston market even as early as the latter part of the 19th century. In Washington an approach to such a plan has been used since 1924 by the cooperative association in its negotiations with the handlers purchasing milk from members of the association.

Handlers cannot purchase milk or cream for fluid milk and cream use from any producer who has not a permit from the Health Department of the District of Columbia. Hence he must at all times insure himself against a possible shortage of milk for such uses.

But the milk and cream used for purposes other than as fluid milk and cream do not need to meet the same strict health standards and such milk and cream can be purchased from producers who are not regularly or rigidly inspected. The milk and cream purchased by the fluid milk and cream handlers in excess of their fluid milk and cream needs must be sold in competition with this lower quality milk and cream.

Ready demand exists among local ice cream manufacturers for the cream which can be made from this milk. Since February 1, 1935 the association has retained title to such excess milk selling it as cream to ice cream manufacturers. Handlers retain the skim milk for the service of separating and handling such cream. The association stands ready and does market the cream from excess milk for handlers who receive only a part or none of their supply from member producers. Handlers thus are relieved of the expense and risk of selling the products from milk not needed for their daily milk and cream trade. The volume, price and disposition of such excess milk by the association during eleven months of 1935 is shown in Table 12.

During 1935 the percentage of all milk produced by association producers retained by handlers which is now defined as Class I varied from 98.4 percent in March to 79.8 percent in June. The percentage returned to the association which is now defined as Class II varied from 1.6 percent in March to 20.3 percent in June. (See Table 13.)

These wide variations in the percentages used in each class arise from the fact that the amount consumed as fluid milk does not fluctuate to the same extent as production. The demand for fluid milk being inelastic even a sharp drop in price would not increase consumption to any marked degree while the rapid rise and fall in the price would probably upset the marketing conditions in the market.

Table 12.- Washington, D.C: Volume, price and disposition of
Class III Sales by the Maryland and Virginia Milk
Producers Association, February-December, 1935.

Month	Volume	Percent of Total Deliveries	Average Net Weighted Price per Gallon	Disposed of Outside of Metropolitan Area
	<u>Gallons</u>	<u>Percent</u>	<u>Cents</u>	<u>Percent</u>
February	55,527	3.56	16.76	24.3
March	28,010	1.59	16.80	21.4
April	68,760	3.93	16.40	49.3
May	357,490	16.40	12.29	75.0
June	418,085	20.26	11.40	75.6
July	208,530	11.57	11.92	43.5
August	189,440	10.45	11.41	64.6
September	196,860	11.19	11.75	32.4
October	147,385	8.13	12.42	53.2
November	57,925	3.50	15.01	54.3
December	93,230	5.38	15.81	67.8
Total	1,821,242			
Average		9.15	12.53	59.3

Compiled from the Annual Report of the Maryland and Virginia Milk
Producer's Association, Inc., 1935.

Table 13. - WASHINGTON, D. C: Total deliveries per day, estimated utilization per day, as milk and cream, and milk returned to the Association by months, 1933 and 1935, for members of the Maryland and Virginia Milk Producers Association.

Year & month	Total deliveries of milk per day	Class I milk used per day			Class II milk used per day		
		As milk		As cream	As cream		Percent of total
		Volume	Percent of total		Volume	Percent of total	
	Pounds	Pounds	Percent	Pounds	Pounds	Percent	Percent
<u>1933</u>							
May	548,945	334,148	60.9	110,907	103,890	20.2	18.9
June	526,928	318,247	60.4	112,295	96,386	21.3	18.3
July	492,099	293,398	59.6	116,713	81,988	23.7	16.7
August	494,316	287,171	58.1	107,713	99,432	21.8	20.1
September	480,604	306,194	63.7	92,878	81,532	19.3	17.0
October	458,221	318,789	69.6	92,316	47,116	20.1	10.3
November	447,903	318,590	71.1	95,281	34,032	21.3	7.6
December	450,068	316,165	70.3	92,358	41,545	20.5	9.2
<u>1935</u>							
January	476,329	330,481	69.4	145,848	30.6 (includes cream and Class II)	30.6	3.6
February	478,789	352,238	73.5	109,496	17,055	22.9	1.6
March	489,933	368,505	75.2	113,658	7,770	23.2	3.9
April	502,068	369,540	73.6	112,817	19,711	22.5	16.4
May	604,902	387,070	64.0	118,657	99,175	19.6	20.2
June	591,624	365,436	61.8	106,337	119,851	18.0	11.6
July	500,207	341,452	68.2	100,905	57,850	20.2	10.5
August	502,672	347,341	69.1	102,777	52,554	20.4	11.2
September	504,291	344,571	68.3	103,287	56,433	20.5	8.1
October	502,795	354,466	70.5	107,442	40,887	21.4	3.5
November	474,391	349,832	73.7	107,954	16,605	22.8	5.4
December	480,503	345,862	72.0	108,777	25,864	22.6	

Compiled from Reports of the Maryland and Virginia Milk Producers Association.

C. Minimum prices to be paid producers.

The minimum prices to be paid associations of producers for Class I milk, according to the terms of the proposed marketing agreement and proposed order, delivered to a handler's plant within 35 miles of the nearest boundary of the marketing area is \$3.08 per hundredweight of milk or 4% milk equivalent of the cream delivered, i.e., \$.77 per pound of butterfat.

If the milk is delivered to a handler's plant located more than 35 miles from the nearest boundary of the marketing area the price of \$3.08 per hundredweight is subject to an adjustment of \$.35 per hundredweight. If cream is delivered the price is also subject to an adjustment of \$.35 per hundredweight.

The price of \$3.08 per hundredweight refers to milk of 4.0 percent butterfat, for each tenth of one percent above or below 4.0 percent there is to be added or subtracted, as the case may be, \$.06 per hundredweight.

The minimum price for Class I milk to be paid producers by handlers is to be not less than \$3.08 per hundredweight subject to the adjustment of \$.35 per hundredweight if delivered to a handler's plant located more than 35 miles from the nearest boundary of the marketing area or if such milk is delivered to a handler's plant as cream.

The Class II price to be paid producers is the amount received for such milk by handlers when sold as cream and if sold as milk the amount received less \$.35 per hundredweight.

The milk shed of the District of Columbia, like many other markets along the Atlantic Coast is surrounded by and includes milk sheds of other cities. Richmond on the South, Philadelphia and New York on the North, West and East, and Baltimore on the Northeast all have their milk sheds adjacent to or overlapping the Washington milk shed. Consequently if there is a strong demand for milk in Washington the price paid for milk in Washington must be high enough to induce enough fluid milk shippers to turn to Washington rather than to one of the other fluid milk markets. There are very few milk producers in the area who produce milk for manufacturing. The Washington milk shed now extends as far south as Fredericksburg, which is approximately half way between Richmond and Washington. The Class I price in Richmond is now \$3.17 per hundredweight for AA milk of 4 percent butterfat content. (See Table 14.) The transportation allowance is about the same from Fredericksburg to Richmond as it is from Fredericksburg to Washington, which results in a differential at Fredericksburg of \$.09 per hundredweight in favor of Richmond for milk of a quality not different from the high quality required by the District of Columbia Health Department.

Table 14. - RICHMOND, VIRGINIA: Fluid Milk Prices, Buying Price per Cwt., 3.5% Milk, FOB City.
Compiled from reports of the U. S. Department of Agriculture, Bureau of Agri. Econ., Division of Dairy & Poultry Products

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1919	4.65	4.65	4.65	4.65	4.65	4.65	4.64	4.71	4.68	4.68	5.12	5.12	4.74
1920	5.12	5.15	5.15	5.15	5.15	5.12	5.06	5.12	5.15	5.12	5.12	5.12	5.13
1921	5.12	5.12	4.30	4.34	4.34	4.24	4.34	4.21	4.23	4.14	4.14	4.14	4.43
1922	4.07	4.07	3.95	3.46	3.46	3.58	3.58	3.46	3.46	4.25	4.31	4.25	3.76
1923	3.81	3.93	4.07	3.58	3.58	3.70	3.70	3.58	3.58	3.58	3.93	3.81	3.94
1924	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.09
1925	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.81
1926	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
1927	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93
1928	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
1929	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93
1930	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
1931	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59	3.59
1932	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68
1933	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.72
1934	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.54
1935	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	2.94
1936	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.14

1/ Interpolated. 2/ High prices of range for AA milk 2/3 sales. Low price for A milk 1/3 sales.
*Basic price. 3/ Class I price 73¢ per pound butterfat, April 16th.

Philadelphia handlers are paying \$2.70 per hundredweight for Class I milk of Grade B quality and of 4.0 percent butterfat content. (See Table 15.) The Philadelphia milk shed comes nearest to Washington at Hagerstown, Maryland. Thus for a country station at Hagerstown with the transportation and country station allowance of approximately \$.40 per hundredweight, the net price is \$2.30 as compared with the price of \$2.73 paid Washington producers at the country station in Frederick, Maryland. This price quoted for Philadelphia is for Grade B milk which is considerably inferior to the milk produced for Washington. The differential of \$.43 appears to be an adequate differential to compensate Washington producers for the higher quality of milk. This differential is in favor of Washington on this side of the milk shed because the quality of Grade B milk produced for Philadelphia is not as high as the milk produced for Richmond. The Philadelphia handler also pays a premium above the quoted prices for milk of Grade-A quality. The average price for Grade A milk for Philadelphia would be about \$3.05 f.o.b. the city so that the differential on such milk is considerably less, being only about \$.08 between Philadelphia and Washington.

The milk sheds of Baltimore and Washington overlap to a considerable extent. Some producers east of Baltimore are now sending their milk to Washington. Consequently the prices in the two cities must be kept in line and the only differential that can exist is one that will adequately compensate the Washington producers for the additional cost and trouble of meeting the Washington sanitary regulations. The price paid for Class I milk in Baltimore is now \$2.90 per hundredweight for milk of 4 percent butterfat content, making a differential of \$.18 per hundredweight. (See Table 16.) This \$.18 differential is customarily thought of in the market as being approximately correct.

D. Price history in the market.

1. Farm price of milk sold wholesale.

The average annual prices of milk sold wholesale in the States of Maryland and Virginia for the period 1910 - 1936 are shown in Tables 4 and 5. During this period in Maryland such prices reached a high point of an average of \$4.41 in the year 1920 but dropped sharply in the next two years so that in 1922 the price averaged only \$2.99. The price increased to \$3.58 in 1923 and averaged about that through 1930. Since 1930 it fell to \$2.00 in 1933, which is the lowest price since 1912, and in 1935 averaged only \$2.48, which, excluding 1932, 1933 and 1934, was the lowest price received for such milk since 1916.

Table 15. - PHILADELPHIA, PENNSYLVANIA: Fluid Milk Prices.
Dealers' buying prices per cwt. of 3.5% Raw Milk delivered, F.O.B. City

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1919	3.87	3.87	3.46	3.26	3.26	3.23	3.48	3.94	3.71 ¹ / ₂	3.71 ¹ / ₂	3.71 ¹ / ₂	3.71 ¹ / ₂	3.60
1920	3.82	3.82	3.88	3.70	3.70	3.68	3.68	4.14	4.10	4.10	4.10	3.18	3.82
1921	2.88*-	3.48	3.48*	3.48*	2.86*	2.74	2.65	2.69	2.69	2.69	2.69	2.70	2.94
1922	3.48	2.68	2.70	2.70*	2.67*	2.57*	2.57*	2.62*	2.57*	2.92*	3.04	3.04	2.73
1923	3.03*	3.04	3.04*	3.04*	3.40*	3.40*	3.44*	3.52*	3.64*	3.52*	3.17*	3.17*	3.28*
1924	3.17*	3.15*	3.15*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*
1925	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16*	3.16 ¹ / ₂	3.39 ¹ / ₂	3.18*
1926	3.39*	3.16*	3.16*	3.16*	2.93*	2.93*	3.16*	3.16*	3.16*	3.51*	3.51*	3.51*	3.23*
1927	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*
1928	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*	3.51*
1929	3.49*-	3.49*-	3.61*-	3.61*-	3.49*-	3.49*-	3.49*-	3.49*-	3.74*-	3.74*-	3.74*-	3.66*	3.60*
1930	3.52*	3.52*	3.64*	3.64*	3.52*	3.52*	3.52*	3.52*	3.77*	3.77*	3.77*	3.29*	3.49*
1931	3.49*-	3.49*-	3.49*-	3.49*-	3.49*-	3.49*-	3.49*-	3.49*-	3.49*-	3.49*-	3.49*-	3.49*	3.49*
1932	3.53*	3.53*	3.53*	3.53*	3.53*	3.53*	3.53*	3.53*	3.53*	3.53*	3.53*	3.53*	2.98*
1933	3.09*	3.09*	3.09*	3.09*	3.09*	3.09*	3.09*	3.09*	2.76*	2.76*	2.76*	2.76*	2.28*
1934	2.71*	2.53*	2.34*	2.34*	2.34*	2.34*	2.20*	2.20*	2.20*	2.20*	1.98*	1.98*	2.25*
1935	1.98*	1.98*	1.98*	1.98*	1.98*	2.23*	2.23*	2.23*	2.56*-	2.56*-	2.60*	2.60*	2.60*
1936	2.56*-	2.60*	2.60*	2.60*	2.60*	2.27*	2.27*	2.27*	2.60*	2.60*	2.60*	2.60*	2.60*
1937	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1938	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1939	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1940	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1941	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1942	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1943	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1944	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1945	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1946	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1947	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1948	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1949	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1950	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1951	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1952	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1953	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1954	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1955	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1956	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1957	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1958	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1959	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1960	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1961	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1962	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1963	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1964	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1965	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1966	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1967	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1968	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1969	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1970	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1971	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1972	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1973	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1974	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1975	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1976	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1977	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1978	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1979	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1980	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1981	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1982	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1983	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1984	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1985	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1986	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1987	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1988	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1989	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1990	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1991	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1992	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1993	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1994	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1995	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1996	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1997	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1998	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
1999	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*
2000	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*	2.60*

Compiled from reports of the Bureau of Agricultural Economics, Division of Dairy and Poultry Products.
1/ Interpolated.
* Basic Prices; i.e., prices paid for milk used in fluid form for city distribution.

Table 16: BALTIMORE, MARYLAND: Fluid Milk Prices

Dealers' Buying Prices per cwt. 3.5% Raw Milk Delivered F. O. B. City.

Compiled from reports of the Bureau of Agricultural Economics, Division of Dairy and Poultry Products

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1919	4.77	4.42	3.72	3.72	3.72	3.49	3.49	3.67	4.00	4.15	4.21	4.21	3.96
1920	4.42	4.30	4.12	3.81	3.63	3.63	3.63	3.76	4.27	3.92	3.78	3.29	3.88
1921	3.66	1/3.66	3.33	3.20	3.19	3.00	3.00	2.73	2.84-	2.73-	2.73	2.73	3.08
1922	2.73	2.73	2.73	2.73	2.62	2.62	2.62	2.73	2.73*	2.73	2.96	3.31	2.77
1923	3.19*	3.19*	3.19*	3.19*	3.19*	3.19*	3.19*	3.19*	3.89*	3.77	3.42*	3.31*	3.33
1924	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.30*
1925	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.31*	3.43*	3.43*	3.43*	3.34*
1926	3.43*	3.31*	3.31*	3.31*	3.31*	3.19*	3.25*	3.31*	3.31*	3.55*	3.55*	3.55*	3.36*
1927	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*
1928	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*
1929	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.55*	3.54*	3.54*	3.55*
1930	3.54*	3.54*	3.54*	3.54*	3.54*	3.54*	3.54*	3.54*	3.54*	3.54*	3.54*	3.54*	3.54*
1931	3.54*	3.54*	3.54*	3.07*	2.84*	2.84*	2.84*	2.58*	2.84*	2.84*	2.84*	2.84*	3.01*
1932	2.84*	2.84*	2.84*	2.84*	2.49*	2.49*	2.49*	2.49*	2.38*	2.38*	2.38*	2.38*	2.57*
1933	2.26*	2.26*	2.26*	2.26*	1.91*	1.91*	2.38*	1.91*	1.91*	2.38*	2.38*	2.38*	2.18*
1934	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.77*	2.77*	2.77*	1/2.77	2.36*	2.51*
1935	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*
1936	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*	2.38*

1/ Producers' Marketing Associations selling price.

* Basic Prices for Fluid Milk.

2. Class I prices paid by handlers.

As explained later, the method of pricing milk to handlers and the method of paying producers have been so interrelated that it is very difficult to determine what prices were being paid for milk used as fluid milk, milk used as cream, and milk used for other purposes. However, after a study of the plan of selling milk to handlers it was found that the amount of basic milk approximately equaled the amount of milk sold as fluid milk and cream so that the price paid for basic milk is approximately equal to the Class I price as now defined in the proposed marketing agreement and proposed order. The customary pricing on the market has been that the handler paid a price for all milk used for fluid milk and cream and for all milk in excess of that amount a price determined to a large extent by the manufacturing value of milk.

The price paid by handlers for Class I milk of 3.5 percent butterfat content since the War reached a high point of \$5.12 per hundredweight in October and December 1919 and then dropped to \$2.79 per hundredweight in February 1922. The price averaged about \$3.75 from 1924 to 1929 but has fallen steadily from 1930 when it averaged \$3.56 to \$2.72 in 1935. (See Table 17.)

From records available apparently some type of quality premium in addition to quoted prices have been paid by a number of dealers on the Washington market, the kind and amount of which have already been indicated in Tables 8 and 9. However, prior to November 1923 a large number of small dealers paid no premiums. Prior to the adoption of the general uniform system of premiums only three dealers particularly specialized in premiums. In November 1923 the Association succeeded in establishing a partially uniform farm score schedule that was apparently used by all dealers except those mentioned later.

<u>Farm score</u>	<u>Per gallon</u>
80 - 84.9	1 ¢
85 - 89.9	1 1/2 ¢
90 - 94.9	2 ¢
95 or over	3 ¢

Practically all the dealers complied with the above uniform schedule. One dairy did not pay any premium on a farm score of 80 - 84.9 but paid 2¢ on a farm score from 85 to 89.9, 3¢ on scores 90 - 94.9, and 4¢ on scores 95 or over. It also paid an additional 1¢ for all the farm score classifications if the cattle score was 99 or better.

Another dairy deviated from the uniform system by paying 2¢ for a farm score from 85 - 89.9 instead of the uniform 1 1/2¢ and paid 3¢ for scores 90 - 94.9, and 4¢ for a farm score of 95 or over. This dairy, however, did not pay any premium if the cattle score was less than 98. However, there were very few instances in which the cattle score was below 98.

Table 17: WASHINGTON, D. C.: Fluid Milk Prices
Dealers Buying Prices per cwt. of 3.5% Raw Milk,
delivered F. O. B. City.

Compiled from reports of the Bureau of Agricultural Economics, Division of Dairy and Poultry Products.													
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1919				4.37	3.67	3.67	3.95	3.95	3.95	5.12	4.78	5.12	
1920	4.65	4.64	4.54	4.42	3.72	3.64	3.81	3.81	4.30	4.30	4.30	4.26	4.20
1921)	4.64	4.07	4.12 1/2	4.18	3.25-	3.25-	3.25	3.26-	3.25-	3.84	3.84	3.84	3.75
1921)					3.37	3.37	3.37	3.38	3.37				
1922	3.57	2.79	2.91	2.91	2.91	2.91	2.91	2.91	2.91	3.37*	3.37	3.37	3.05
1923)	3.57	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37-	3.37	3.72	3.72	3.45
1923)									3.45				
1924)	3.72	3.72	3.72*	3.20*-	3.20*-	3.20*	3.20*	3.20*	3.20*	3.20*	3.20*	3.20*	3.35
1924)				3.39	3.39								
1925	3.20*	3.20*	3.20*	3.20*	3.20*	3.20*	3.20*	3.20*	3.20*	3.60*	3.60*	3.60*	3.30*
1926)	3.60*	3.61*-	3.65*	3.60*-	3.14*	3.14*-	3.14*	3.14*	3.14*	3.60*	3.60*	3.60*	3.42*
1926)		3.64*		3.64*		3.18*							
1927)	3.60	3.60*	3.60*	3.60*	3.50*-	3.37*	3.49*	3.49*	3.49*	3.49*	3.49*	3.49*	3.55*
1927)					3.72*		3.72*	3.72*				3.71*	
1928)	3.49*	3.49*	3.49*-	3.49*-	3.49*-	3.49*-	3.49*-	3.45*-	3.49*-	3.49*-	3.49*-	3.49*-	3.58*
1928)		3.71*	3.71*	3.70	3.70	3.70	3.70*	3.49*	3.70*	3.70*	3.70*	3.70*	
1929)	3.49*	3.49*	3.49*-	3.49*-	3.49*-	3.49*-	3.49*	3.49*	3.49*	3.49*	3.49*	3.49*	3.54*
1929)			3.70*	3.70*	3.70*	3.70*	3.49*	3.49*	3.70*			3.70*	
1930)	3.49*-	3.49*-	3.49*-	3.49*-	3.49*	3.49*-	3.49*	3.49*	3.49*	3.49*	3.49*	3.49*	3.56*
1930)	3.70*	3.70*	3.82*	3.70*	3.26*-	3.70*	3.26*-	3.26*-	3.26*-	3.70*	3.70*	3.26*-	3.41*
1931)	3.49*-	3.49*-	3.49*-	3.26*-	3.48*	3.48*	3.48*	3.48*	3.48*	3.48*	3.26*	3.48*	
1931)	3.82*	3.70*	3.70*	3.70*	2.79*-	2.79*	2.79*	2.79*	2.79*	2.79*	2.79*	2.79*	3.03*
1932)	3.26	3.26	3.26*-	3.26*-	3.12	2.79*	2.79*	2.79*	2.79*	3.02*	3.02*	3.02*	
1932)		3.49*	3.49*	3.49*	2.79*	2.67*	2.67	2.67	2.67*	2.67*	2.67*	2.67*	2.79*
1933)	2.79*	2.79*	2.79*	2.79*	2.79*	2.67*	2.67	2.67	2.96*	2.93*	2.67*	3.02*	2.76*
1933)		3.02*	3.02*	2.67*-	3.02*	2.67*	2.67*	2.67*	2.67*	2.67*	2.67*	2.67*	
1934)	2.67*	2.67*	2.67*	2.67*-	2.67*	2.67*	2.67*	2.67*	2.67*	2.67*	2.67*	2.67*	2.72*
1934)				3.02*	3.02*		3.02*	3.02*	3.02*	3.02*	2.73*	2.73*	
1935)	2.67*	2.73*	2.73*	2.73*	2.73*		2.73*	2.73*	2.73*	2.73*	2.73*	2.73*	
1936	2.73*	2.78*	2.78*	2.78*	2.78*	2.73*	2.73*	2.73*	2.73*	2.73*	2.73*	2.73*	

* Basic Prices

1/ Interpolated

A third dairy paid the same farm score premiums as the second one described above but did not pay any farm score premium above 84.9 if the cattle score was less than 98.

In January 1931 the Association succeeded in establishing a completely uniform system of premiums. On May 1, 1932, an additional farm score classification was made which required paying 4¢ on a farm score of 97.9 with a cattle score of 99. The complete schedule as continuing at the present time is as follows:

<u>Farm score</u>	<u>Per gallon</u>
80 - 84.9	1 ¢
85 - 89.9	1 1/2 ¢
90 - 94.9	2 ¢
95 - 97.9	3 ¢
98 -100 with cattle of 99	4 ¢

The percentage of milk in each of these classifications has been determined by a sample of about 50 percent of the members of the Association. From this percentage and taking into consideration the minor variations noted above, the weighted average premium paid to producers has been computed. (See Table 8.)

The average premium paid since 1927 has shown a steady increase indicating that the quality of milk in Washington has steadily improved under such a system of premiums. During the period 1924 to 1929 the average premium paid amounted to 1.58 cents per gallon or 18.4 cents per hundredweight. During January 1936 this average premium amounted to 34 cents per hundredweight. (See Table 9.) This increase in the average amount paid for premiums has been caused by the fact that the quality of milk has been considerably bettered in the market and a much higher percentage of the milk is now included in the higher score classifications. Consequently to make an accurate comparison of the prices now received by producers with the prices received in a period in the past the premiums paid in both periods should be added.

3. Butterfat differential.

The prevailing butterfat test of milk sold in the District of Columbia has increased gradually from 1922 when it averaged 3.74 percent butterfat to 1934 and 1935 when it averaged 4.12. (See Table 18.)

The allowance paid by handlers for each 1/10 percent butterfat variation from the quoted test has also increased. In 1922 the average allowance was approximately 4.6 cents per hundredweight. From about June 1927 to Feb. 1936 the allowance was 7 cents. In March of this year the allowance was reduced to 6 cents. (See Table 19.)

Table 18.-- Washington, D.C.: Fluid Milk Prices, Prevailing Butterfat Test
of Milk Sold.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Av.
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1919	3.7												
1920													
1921				3.5	3.5	3.6-4.1	3.6-4.0	3.5	3.5	3.6-4.0	3.6	3.6-4.0	
1922	3.5-3.7	3.6-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.74
1923	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.75
1924	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.5-4.0	3.75
1925	3.5-4.0	3.8	3.8	3.8-4.0	3.8	3.8	3.8	3.8-4.0	3.8	3.8	3.8	3.8	3.81
1926	3.8	3.8-4.0	3.8	3.8-4.0	3.9 1/2	4.0	3.8-4.0	3.8	3.8	4.0	4.0 1/2	4.0 1/2	3.90
1927	4.0 1/2	3.8-4.0	3.8-4.0	3.95 1/2	4.0	4.0 1/2	4.0 1/2	3.95 1/2	3.9 1/2	3.9 1/2	3.9	3.9-4.0	3.95
1928	4.0	4.0	3.8-4.0	3.8-4.0	3.8-4.0	3.8-4.0	3.8-4.0	3.8-4.0	3.8	3.7-4.1	3.7-4.2	3.7-4.1	3.91
1929	3.7-4.1	3.7-4.1	3.7-4.1	3.7-4.1	3.7-4.1	3.7-4.1	3.7-4.1	4.1	3.7-4.1	4.1	3.7-4.1	3.7-4.1	3.94
1930	4.1	4.0-4.1	3.7-4.1	3.7-4.1	3.7-4.1	4.0-4.1	4.0-4.1	4.0-4.1	3.7-4.1	4.1	3.9-4.1	4.1	4.01
1931	3.8-4.0	4.0	4.0	4.0	4.0-4.1	4.0-4.2	4.0-4.2	4.0-4.2	4.0	3.8-4.2	3.8-4.1	3.8-4.2	4.02
1932	4.2	4.2	3.8-4.3	3.8-4.2	3.9-4.2	4.05 1/2	4.12 1/2	4.2 1/2	4.2	3.8-4.2	3.8-4.2	4.2	4.11
1933	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	3.8-4.2	4.00
1934	3.8-4.2	3.8-4.2	3.8-4.2	4.0-4.2	4.0-4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.0-4.2	4.12
1935	4.2	4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.12
1936	4.0-4.1	4.0-4.1	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.0-4.2	4.12

1/ Interpolated.

Compiled from reports of the Bureau of Agricultural Economics, Division
of Dairy and Poultry Products.

Table 19. WASHINGTON, D. C. - Fluid Milk Prices

Allowance per 1/10 percent Butterfat per hundredweight

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Av.
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1919	4.6	4.6	4.6	4.6	4.6	4.6	4.0	4.6	4.6	4.6	4.6	4.6	4.55
1920	4.6	4.6	4.3	4.3	4.3	3.1	4.0	4.6	4.0	4.0	4.6	4.0	4.20
1921	4.0	4.0	4.0/1	4.0	4.0	4.64/1	4.64	4.0	4.6/1	4.6	4.6	4.6/1	4.31
1922	4.65	4.0	4.65	4.65	4.65	4.65	4.65	4.65/1	4.65	4.65	4.65	4.65	4.60
1923	4.85	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.60	4.60	4.65	4.65	4.66
1924	4.65	4.65	4.65	4.6	5.8	5.8	5.8	5.8	5.8	5-5.8	5.8	5.8	5.38
1925	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.5	7.0	7.0	7.0	6.08
1926	7.0	6.0	6.0	6-7	6.9	6-7	6.9	6.9	7.0	7.0	7.0	7.0	6.72
1927	7.0	7.0	7.0	7.0	6-7	7.0	7.0	6-7	7.0	7.0	7.0	7.0	6.92
1928	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.00
1929	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.00
1930	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98
1931	6.98	6.98	6.98	6.8	6.8	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.96
1932	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.00
1933	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	6.75
1934	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.00
1935	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.00
1936	7.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0	7.00

Compiled from reports of the Bureau of Agricultural Economics, Division of Dairy and Poultry Products.

/1 Interpolated.

The value of additional butterfat in the marketing area is not different from the value of butterfat in Class I milk because additional butterfat for Class I use can be purchased only at the Class I price. Some of the additional butterfat in the milk not used in Class I could be purchased at a price nearer the manufacturing level. Hence a butterfat differential of six cents appears to be a correct allowance for additional butterfat in all milk over and above milk testing 4.0 percent butterfat content. The allowance of \$.06 per hundredweight is provided in the proposed marketing agreement and proposed order.

4. Class II price.

Producers must deliver more milk than is required for actual use as Class I in order to take care of the fluctuations in the sale of such milk. After such milk is delivered if it is not sold as fluid milk and cream it must be sold for ice cream or other manufacturing purposes for which purposes the inspection of milk is not so rigid and the price paid not so high as for milk used for fluid milk and cream. ^{4/}

The price paid for such milk is determined by the prices at which cream can be purchased on the open market for ice cream manufacturing. The handlers cannot afford to pay more for this surplus milk than the price equivalent to this open market price on cream even though the milk is the same as the milk used as Class I. It has been the practice on the market that the association would accept the responsibility of all the excess milk of the handlers buying through the association, which represents about 85 percent of all the milk in the market.

The price proposed for Class II is that price received by handlers for such milk sold to a manufacturer of ice cream sold wholesale provided, however, that that price is not lower than the price offered by the cooperative association and on file at the milk Market Administrator's office on the date of the sale.

In this way the producers receive the full alternative value of all the milk which they must produce in order to ensure an adequate supply of Class I milk but which cannot be sold as Class I by the handlers.

5. Class price adjustments.

At the present time there are two country stations at which milk is received from producers. These two stations are located at Frederick and Walkersville, Maryland.

At one time in 1923 the differential between country plant prices and the f.o.b. Washington prices was 8 cents per gallon. The differential

^{4/} The Health Department regulations do not allow any ice cream to be manufactured in any plant where milk or cream for fluid use is handled.

included a 3 cent charge for transportation and an operating allowance of 5 cents per gallon. On October 1923 the operating allowance was reduced to 4 cents per gallon. As the roads have improved the transportation has been less expensive and the service rendered by country station has been of less importance. The country station renders a real service to producers. Milk is received, weighed, tested, and prepared for shipment to the marketing area. Producers who deliver to a country station have at all times an available market for their milk and do not need to take the risk of shipping to the market only to have it refused. The farmer also saves the wear and tear on his milk cans. With direct shipment he would require three or four sets of cans, but when he sells to the country station only one set is necessary. Furthermore if each producer shipped his milk to the city individually the transportation cost would be much higher than when the milk of a number of producers is assembled at one station.

For the last ~~two months~~ the differential between the country plant and f.o.b. marketing area prices has been only \$.35 per hundredweight which includes both transportation and operating allowance to handlers. This same differential is provided in the proposed marketing agreement and proposed order.

If the Class I milk is delivered to handlers as cream the producer has gained the value of the skim milk rather than the handler. Consequently the price of Class I milk delivered as cream to handlers is adjusted by the value of the skim milk, which is approximately \$.35 per hundredweight in the market.

On Class II milk sold as milk the handler is allowed \$.35 per hundredweight for the cost of receiving and handling such milk. If sold as cream the handler has the skim milk to cover the cost of receiving and handling the milk.

Part V

Demand Conditions in the District of Columbia Marketing Area.

A. Business Conditions - purchasing power of consumers.

There has been a distinct improvement in employment in this section of the country and for the first time in several years employers have found it necessary in some cases to advertise for workers. Evidence of these better conditions are given by the index of employment in Baltimore which was 101.3 in March 1936 (November 1931 = 100) as compared with 97.0 in March 1935 and 98.3 in February 1936. (See Table 20.) Payroll totals index was 107.0 in March 1936 as compared with 96.4 last March and 101.8 in February. (See Table 21.)

As is indicated in the Monthly Review of Agricultural, Industrial, Trade and Financial Conditions published by the Federal Reserve Bank of Richmond general business conditions in the Fifth Federal Reserve District have shown marked improvement so far in 1936 as compared with the same period in 1935.

The volume of construction work provided in building permits of April 1936 was the largest since July 1931 and was nearly double the work provided for in April 1935. In Washington so far in 1936 there have been awarded 712 permits at a total valuation of \$2,987,360 as compared with the 546 permits awarded at a total valuation of \$1,365,175 for the same period in 1935.

Retail sales in department stores in Washington increased 8.7 percent in April 1936 as compared with April 1935 and for the period January to April 1936 such sales have increased 12.3 percent as compared with January to April 1935.

All these indications of the increase in business reflect also an increase in the demand for milk and other food products. There is no reason to believe that this increase in trade will not continue.

B. The Sales of fluid milk.

The improved demand conditions in 1935 made possible an increase in the amount of milk sold as fluid milk. In 1934 it is estimated by the cooperative association that there was used as fluid milk by dealers buying milk through the association 13,879,390 gallons as compared with in 1935, 15,055,175 gallons, an increase of 8.5 percent. The fluid milk sales do not vary markedly from season to season, having varied only from 38,428 pounds per day in January 1935 to 45,008 gallons per day in May, a range of only 17.1 percent. (See Table 22.)

Table 20. BALTIMORE, MARYLAND: Index Numbers of Employment in Manufacturing Industries by Months, November 1931 - 1936

(November 1931 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Av.
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1931											100.0	101.5	
1932	94.8	92.7	93.6	92.6	89.3	88.2	85.0	83.5	85.9	85.9	83.9	86.7	88.5
1933	77.4	79.7	75.3	81.6	84.4	86.6	87.7	94.4	100.1	103.1	100.4	100.3	89.2
1934	92.0	95.8	99.5	104.2	104.3	103.8	101.8	99.5	99.8	99.3	97.4	100.5	99.8
1935	93.7	95.1	97.0	100.7	99.8	99.8	98.5	100.1	100.9	102.4	101.4	104.7	99.5
1936	98.3	98.3	101.3										

Computed from reports of the Bureau of Labor Statistics.

Table 21. BALTIMORE, MARYLAND: Index Numbers of Payroll Totals in Manufacturing Industries by Months, November 1931 - 1936

(November 1931 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Av.
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1931											100.0	101.2	
1932	93.2	91.1	90.8	87.2	82.3	81.3	75.1	72.8	75.6	75.2	71.5	74.8	80.9
1933	66.4	67.1	61.1	65.2	70.0	73.2	75.7	84.0	92.2	94.7	90.7	90.8	77.6
1934	84.5	89.8	93.6	98.5	100.7	100.9	98.1	90.4	90.1	88.6	86.9	91.3	92.8
1935	88.8	93.0	96.4	99.4	97.0	99.0	97.3	100.2	100.4	102.2	100.9	105.8	98.4
1936	100.2	101.8	107.0										

Computed from reports of the Bureau of Labor Statistics.

Table 22. Estimated amount of milk sold as milk by handlers purchasing their supply from the Maryland and Virginia Milk Producers Association, 1930 - 1935.

Month	1930	1931	1932	1933	1934	1935
	<u>Gallons</u>	<u>Gallons</u>	<u>Gallons</u>	<u>Gallons</u>	<u>Gallons</u>	<u>Gallons</u>
January	962,052	1,140,024	1,343,937	1,221,483	1,157,710	1,191,267
February	888,441	1,135,943	1,284,901	1,116,415	1,061,503	1,146,821
March	1,013,143	1,310,626	1,371,530	1,245,624	1,197,217	1,328,332
April	1,013,314	1,268,961	1,354,348	1,169,177	1,171,594	1,289,094
May	1,090,523	1,349,323	1,371,825	1,204,486	1,223,066	1,395,253
June	1,015,206	1,270,212	1,269,342	1,110,163	1,152,380	1,274,777
July	945,625	1,237,604	1,245,932	1,057,597	1,117,195	1,230,815
August	947,833	1,222,094	1,208,775	1,035,152	1,099,691	1,252,044
September	987,116	1,272,037	1,276,241	1,068,119	1,137,456	1,201,993
October	1,013,760	1,363,111	1,289,133	1,149,123	1,219,914	1,277,725
November	1,004,280	1,305,763	1,232,617	1,111,362	1,165,869	1,220,343
December	1,094,634	1,349,019	1,257,700	1,139,666	1,175,799	1,246,711
Total	11,975,927	15,224,717	15,506,281	13,628,367	13,879,394	15,055,175
Percentage of 1930	100.00	127.0	130.0	114.0	116.0	126.0

Maryland and Virginia Milk Producers Association.

PART VI

The Supply Condition in the District of Columbia Milk Shed

A. Location and boundaries of the District of Columbia milk shed.

1. Counties in which milk supply originates.

The milk supply for the District of Columbia is produced almost entirely within an area about 50 miles from its boundaries. (See Figure 1.) There are some scattered producers in the farther counties of Virginia and Maryland and a few in West Virginia. However, the transportation costs combined with the additional expense of meeting the very high quality standards for milk produced for sale in the District of Columbia, as compared with the standards for other markets, make that market unattractive for producers much beyond 50 miles.

2. Competing markets for milk produced in the area.

The market for milk produced in the area other than as fluid milk and cream is very limited. There is one condensery in Greensboro, Maryland, but there are only a few producers inspected for the Washington market who could readily ship to that plant.

There are six creameries in the milk shed which do a centralizing business. (See Figure 1.) The patrons of these creameries, however, are mainly those producers who produce milk only intermittently and are not interested in maintaining their cattle, barns, and farms in such condition that they could meet the health regulations for shipping milk to the District of Columbia. Hence such markets are not attractive to the producer who is interested in producing milk for fluid milk and cream use.

The most attractive alternative markets for fluid milk producers in the area are other fluid milk markets. As explained before, the milk shed for the District of Columbia is adjacent to, and overlaps in some instances, the milk sheds of Baltimore, Richmond, and Philadelphia. Hence at the edge of the District of Columbia milk shed one finds other fluid milk producers who are shipping to other markets. The prices paid for milk sold in the District of Columbia must be high enough at the edge of the milk shed to compensate enough producers for the difference between the costs of transporting milk to the District of Columbia and to those other markets plus an adequate compensation for the high sanitary standards necessary for milk produced for sale in the District of Columbia.

B. Type of farming in the area.

The farmers in the milk shed are, for the most part, general farmers with some poultry, cash grain, and truck farming along with the

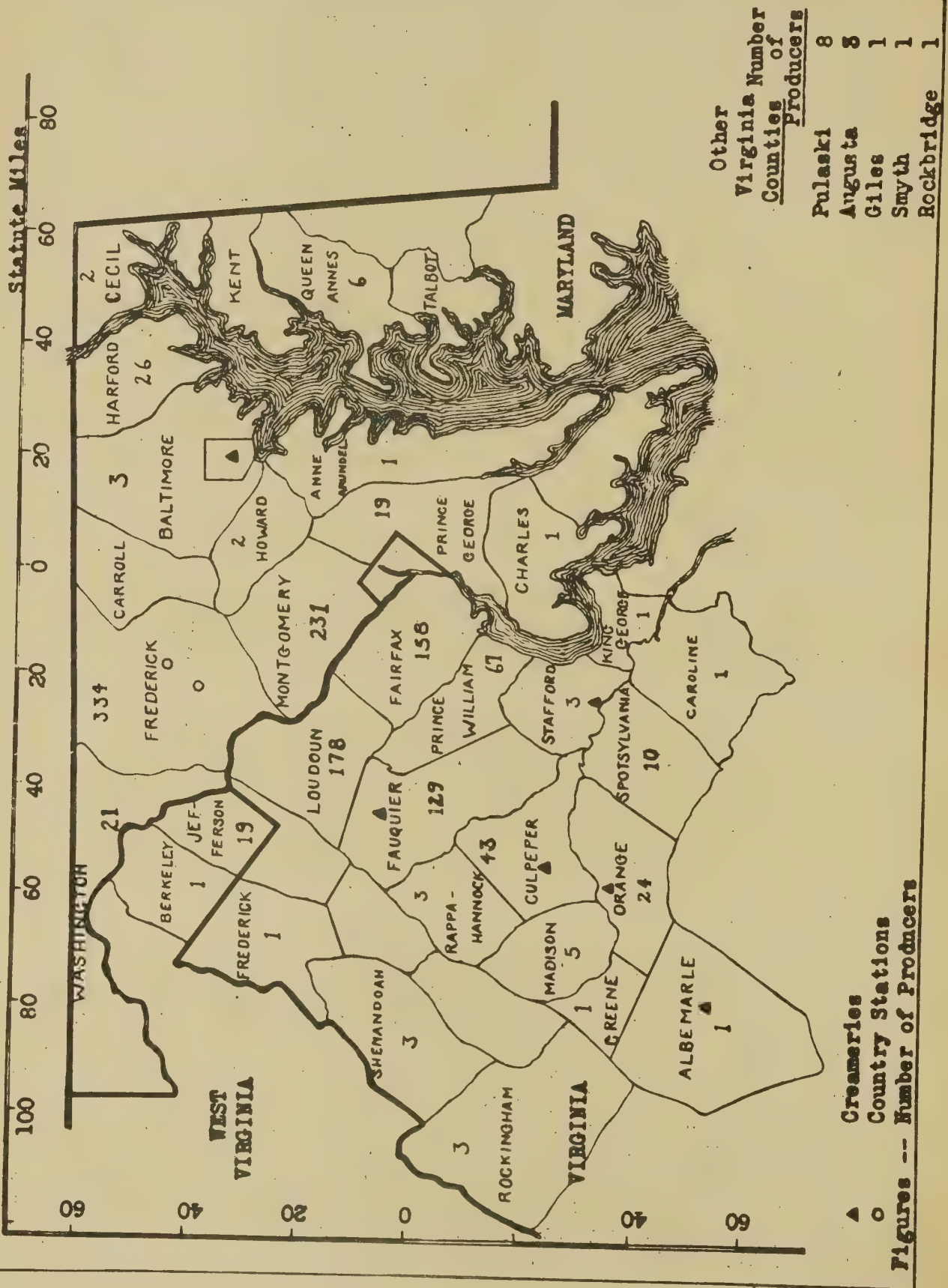


FIGURE 1: MILK SUPPLY AREA FOR THE DISTRICT OF COLUMBIA

dairy enterprise. The dairy farmer for the Washington market, however, must be highly specialized in the dairy enterprise, because of the large investment he must make in his cattle, equipment, barns, and farm.

In the Maryland section of the milk shed over 18 percent of the farms receive more than 40 percent of their income from the dairy enterprise, and in Frederick County, the principal source of supply for the District of Columbia, over 35 percent of the farms have 40 percent of their income from dairying.

In Virginia where there are relatively more farms of other types, the percentage is not so high. However, in those counties which are most important as a source of supply for the marketing area, the percentage of farms receiving over 40 percent of their income from dairying average more than 10 percent. (See Table 23.)

Over 75 percent of all the farms in the milk shed reported cows milked. In the Maryland section there is an average of 40 cattle per square mile, and in Virginia an average of 32 cattle per square mile.

1. Use of land and expenditure for feed.

The percent of land in farms in the milk shed has increased in the period 1929 to 1934. According to the census late in 1934 over 70 percent of all the land in the milk shed is in farms. About one-fifth of the land in the milk shed in Maryland is in pasture while nearly one-third is in pasture in the Virginia section of the milk shed. The percentage of land in pasture has not changed materially from 1929 to 1934. (See Table 24.)

About 10 percent of the land is used for corn, less than one percent for threshed oats, and about 7 percent for hay.

Consequently, although some feed is grown the dairy farmers also incur large out-of-pocket expense for feed in most of the counties of the milk shed. Only three counties in the milk shed have an average cash expenditure for feed of less than \$500 per year while the majority of the counties have an average of well over \$1,000, averaging as high as \$1,972.71 per year in Prince George County, Maryland, and \$1,934.70 per year in Rappahannock County, Virginia, where there are only three very large Washington milk farms. (See Table 25.)

2. Size of farms.

The average size of dairy farms in the milk shed is considerably larger than the average size of all farms. In the counties in the milk shed in Maryland the dairy farms averaged 156 acres and all farms averaged only 109.3 acres. In the Virginia counties of the milk shed the dairy farms averaged 222 acres and all farms averaged 138.1 acres.

Table 23. Type and size of farm, size of herd and type of cattle enterprise in selected Counties which include the District of Columbia Milk Supply Area, 1929.

State and County	Percent of farms with over 40% income from dairy	Average Size of Farm Acres	Average Size of Dairy Type Farm Acres	Number of Milk Cows		Total No. of Cattle per Sq. Mi.	Percent Milk Cows are of all Cattle		Percent cows of dual-purpose or breeding are of all cows milked		Percent of farms reporting cows milked
				Per Farm reporting Milk Cows	Per Dairy Type Farm		Percent	Percent	Percent	Percent	
				Number	Number		Number	Number	Number	Number	
Maryland											
Cecil	35.5	123.1	130	7.5	11.1	41.3	57.2	.9	.8	83.6	
Charles	.4	128.8	168	2.7	9.3	12.5	48.9	3.0	1.8	66.3	
Frederick	35.6	102.0	139	8.5	13.3	67.2	54.9	5.7	4.8	53.9	
Montgomery	17.6	121.1	189	6.9	18.9	44.0	45.2	5.0	3.8	76.6	
Prince George	1.7	90.6	196	2.9	18.8	15.2	51.0	4.1	3.3	56.8	
Washington	11.3	90.5	116	5.8	11.1	47.6	51.7	6.4	6.6	76.4	
Average* (6 counties)	18.2	109.3	156	6.2	13.4	39.8	52.2	4.8	4.1	74.5	
State	13.1	101.3	137	5.4	13.4	32.1	52.3	4.6	2.7	71.1	
Virginia											
Albemarle	2.4	136.9	219	3.3	19.7	20.8	43.1	8.6	7.2	79.9	
Clarke	1.9	185.9	112	4.9	12.7	40.7	32.2	6.0	3.9	85.3	
Culpeper	6.5	150.5	278	6.6	25.9	44.2	43.8	12.0	3.6	90.3	
Fairfax	15.3	99.4	163	6.4	20.5	30.7	49.9	11.3	8.5	79.6	
Fauquier	10.6	193.0	224	5.7	19.8	39.3	35.0	9.4	6.0	90.0	
Frederick	2.1	129.0	157	3.5	13.0	28.0	40.9	7.3	2.1	81.2	
Greene	2.1	97.6	124	2.9	5.6	29.4	46.7	13.4	-	53.8	
King George	1.8	103.1	275	2.8	13.2	18.2	49.9	5.0	.5	69.1	
Loudoun	12.6	172.4	207	7.1	22.4	55.1	37.3	2.7	.9	91.1	
Madison	1.6	123.7	216	4.5	17.6	34.5	45.3	7.8	-	87.1	
Orange	2.5	129.8	301	4.7	21.0	30.3	43.5	9.2	1.3	84.8	
Prince William	10.8	153.3	253	5.6	21.3	27.8	43.0	3.4	1.4	90.2	
Rappahannock	1.5	157.4	330	4.0	23.4	36.0	30.9	48.1	4.9	85.7	

Table 23.(cont.) Type and size of farm, size of herd and type of cattle enterprise in selected Counties which include the District of Columbia Milk Supply Area, 1929

State and County	Percent of farms with over 40% income from dairy	Average Size of Farm	Average Size of Dairy Type Farm	Number of Milk Cows		Total No. of cattle per Sq. Mile	Percent Milk Cows are of all Cattle	Percent milk cows of dual-purpose or beef-breeding are of all cows milked		Percent of farms reporting cows milked
	Percent	Acres	Acres	Per Farm	Per Dairy Type Farm	Number	Percent	All Farms	Dairy Farms	All Farms
				Number	Number			Percent	Percent	Percent
Virginia										
Spotsylvania	7.5	112.5	173	3.6	12.4	21.2	48.0	4.7	4.0	80.0
Stafford	4.1	111.5	189	3.2	12.1	15.4	55.3	7.8	6.1	79.6
Warren	1.3	153.7	299	3.0	12.0	19.4	33.4	13.6	14.6	77.9
Average* (16 counties)										
State	5.7	138.1	222	4.6	19.4	31.6	41.0	9.4	4.3	84.0
	2.0	98.1	186	2.6	16.9	20.7	40.6	12.2	5.2	75.3
West Virginia										
Berkeley	9.3	125.0	163	4.9	12.0	28.2	49.3	15.8	6.3	77.3
State	3.4	106.5	134	2.8	10.3	23.2	35.5	20.4	7.7	84.3

Compiled from United States Census of Agriculture, 1930.

* Averages figured from totals.

TABLE 24. Use of land in selected Counties in the District of Columbia Milk Supply Area, 1929 and 1934
 Compiled from the Fifteenth Census of the United States, 1930, and Census Pamphlets, 1935

State and County	Percent of land in farms in specified crops									
	Percent land in farms is of total land		All pasture		All crops		Corn		Threshed Oats	
	1929	1934	1929	1934	1929	1934	1929	1934	1929	1934
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
MARYLAND										
Cecil	72.6	67.7	23.7	21.4	49.6	50.5	10.6	11.0	1.9	.1
Charles	69.0	68.5	22.1	20.9	31.2	28.5	8.1	7.2	*	*
Frederick	82.6	81.6	22.3	23.5	61.7	60.2	15.3	14.7	1.0	.7
Montgomery	71.6	70.6	30.9	29.6	45.8	45.4	11.7	11.3	.2	.2
Prince George	67.3	66.5	22.6	24.2	42.3	41.1	8.6	80.1	*	.1
Washington	78.6	74.9	21.1	20.4	60.5	61.6	14.9	14.8	.8	.4
Average (6 Co.)**	74.2	72.3	23.8	23.5	50.0	49.2	12.0	11.6	.7	.4
State	68.8	68.9	21.9	21.7	48.7	47.5	11.4	11.0	1.0	.8
VIRGINIA										
Albemarle	72.4	1/76.3	38.8	39.0	25.6	24.9	6.4	5.8	.4	.4
Clarke	91.5	90.5	49.0	47.3	39.4	39.6	11.0	9.7	.4	.2
Culpeper	76.8	75.2	48.8	50.3	32.1	26.8	11.4	9.5	.6	.4
Fairfax	46.4	53.2	36.0	36.5	33.8	34.4	8.8	7.9	.6	.3
Fauquier	80.9	87.4	54.3	54.5	26.7	23.7	9.4	8.3	.2	.1
Frederick	81.2	84.5	35.0	36.4	37.0	34.2	6.6	6.1	1.0	.4
Greene	81.1	85.0	42.2	42.4	29.0	25.0	8.7	7.7	.7	.5
King George	75.5	77.0	33.7	31.3	31.6	33.0	11.3	8.9	.2	.3
Loudoun	85.4	89.6	51.5	52.3	34.5	32.6	12.3	11.3	.4	.4
Madison	76.8	80.3	43.7	44.9	27.6	25.6	9.5	8.1	.5	.4
Orange	67.4	74.8	41.1	34.9	28.0	27.1	9.5	8.0	.5	.6
Prince William	56.8	68.2	44.2	39.8	29.9	28.2	10.5	8.3	.6	.1
Rappahannock	80.2	78.5	55.1	59.1	20.5	20.2	6.6	6.2	.3	.1
Spotsylvania	62.4	60.4	29.8	22.8	25.4	24.2	7.6	7.1	.4	.4
Stafford	59.0	55.0	27.9	26.4	28.4	31.5	8.8	8.4	.7	.7
Warren	65.9	80.6	42.2	44.7	31.9	26.3	8.6	6.9	.4	.1
Average (16 Co.)**	74.9	76.1	43.3	42.9	29.7	28.0	9.1	8.0	.5	.3
State	64.9	68.5	33.4	33.0	30.2	28.7	8.7	8.0	.3	.2
WEST VIRGINIA										
Berkeley	72.2	71.2	33.1	29.1	47.6	46.9	9.6	9.2	.6	.3
State	57.3	61.3	51.2	52.6	21.7	20.5	4.9	5.6	.7	.5

* Less than one-tenth of one percent

** Average computed from totals

1/ Area remeasured from corrected map

June 30, 1936.

Table 25. - Total production, production per square mile, per cow and daily per herd, and expenditure for feed per farm in selected counties which include the District of Columbia Milk Supply Area, 1929. Compiled from the United States Census of Agriculture, 1930, Volume I, Volume II and Volume III, Part 2.

State & County	Total milk produced		Milk produced per square mile		Milk production per cow		Milk produced daily per herd		Annual expenditure for feed per farm	
	Pounds		Pounds		Pounds		Pounds		Dollars	Dollars
MARYLAND:										
Cecil	43,821,885		116,238		4,918.8		100.8		386.83	542.78
Charles	6,236,522		13,441		2,191.3		16.2		97.30	1,420.00
Frederick	126,659,863		191,041		5,178.2		120.4		349.96	581.07
Montgomery	55,984,254		107,455		5,405.5		101.6		481.93	1,301.88
Prince George	14,619,596		30,331		3,903.8		30.8		324.79	1,972.71
Washington	49,180,209		107,146		4,348.4		69.1		229.32	424.84
Average (6 Co.)	*296,502,329		99,967		4,811.2		82.2		327.65	682.58
STATE	754,957,097		75,944		4,530.2		67.3		330.94	703.44
VIRGINIA:										
Albemarle	24,865,154		33,287		3,717.3		33.7		212.47	1,454.71
Clarke	8,440,066		49,357		3,764.5		50.3		379.51	930.20
Culpeper	25,336,288		65,970		3,404.5		61.3		204.53	976.48
Fairfax	36,590,755		87,959		5,732.5		101.3		690.48	1,788.50
Fauquier	36,024,532		54,091		3,936.7		61.4		383.96	1,184.98
Frederick	16,578,598		38,465		3,357.0		32.2		157.52	543.29
Greene	5,701,172		36,782		2,682.9		21.3		68.18	150.71
King George	5,968,452		33,168		3,659.4		28.0		92.19	620.44
Loudoun	50,875,639		98,026		4,769.9		93.0		457.50	1,281.94
Madison	15,680,965		48,398		3,095.3		38.3		133.27	916.00
Orange	16,314,957		45,446		3,450.7		44.2		176.22	1,210.13
Prince William	19,839,899		57,507		4,815.5		73.7		388.48	1,525.92
Rappahannock	8,664,500		31,622		2,844.6		31.0		191.43	1,934.70
Spotsylvania	13,853,835		33,626		3,309.6		32.4		163.30	703.04
Stafford	8,905,532		32,502		3,817.2		33.0		165.74	542.38
Warren	5,035,257		23,311		3,601.8		29.9		204.84	1,618.13
Average (16 Co.)	*298,675,601		48,094		3,922.4		49.8		276.18	1,237.77
STATE	1,251,512,145		50,856		3,704.2		26.7		155.08	1,150.42
WEST VIRGINIA:										
Berkeley	18,891,586		58,128		4,190.7		55.8		177.02	455.58
STATE	721,268,799		30,025		3,652.1		28.4		126.70	626.46

* Total.

3. Character of herds.

The average number of milk cows per dairy farm is a little higher in Virginia than in Maryland. In Maryland the herds averaged about 13 cows while in Virginia the average herd was about 19 cows. The average number of milk cows on all farms in Maryland was only 6 and in Virginia only 5.

A considerable number of cattle other than milk cows are carried on farms. In Maryland only 52.2 percent of all cattle were milk cows and in Virginia only 41 percent. These other cattle are mainly beef steers bought for grazing and fattening. However, only four percent of the cows milked in Maryland on dairy type farms are dual purpose, or beef breeding animals, and the same in Virginia, which indicates the high specialization of the dairy farmers in the milk shed. The percentage is somewhat higher for all farms, being 4.8 in Maryland and 12.2 in Virginia. However, at times when the price of milk is high relative to the price of beef, there is a tendency for producers of beef to shift to milk production.

C. Production and disposition of milk.

1. Production.

The fact that there are so many cows of beef breeding and dual purpose type also causes the average milk production per cow on all farms to be lower than the milk production per cow on dairy farms. In the milk shed in Maryland average milk production per cow on dairy farms was 5,740 pounds as compared with 4,811 pounds per cow on all farms. The difference was even higher in Virginia where the dual purpose and beef breeding cows are of more importance. In that State the average production per cow on dairy farms was 5,645 pounds and on all farms 3,922 pounds.

The principal source of milk for the District of Columbia is in Frederick County, Maryland, where there are located two country plants. It is also the largest milk producing county in the milk shed. Over 126,000,000 pounds of milk were produced in that county in 1929. There is produced in all counties in the milk shed a total of 614,069,516 pounds. (See Table 25.) The greatest part of the milk is produced for sale as whole milk except in those counties where the production of milk is very low and the number of cows in herds very small so that little milk is available for sale.

The area within the milk shed contains producers of diverse type with a wide variety of natural and financial resources, types of farming, feed supplies, amounts of feed purchased, and types of cattle. These conditions allow some farmers certain advantages, and others disadvantages, in the production of fluid milk for market. They also make it necessary to take into consideration many situations peculiar to this market.

2. Deliveries per day per dairy.

The average dairy farm in this milk shed is considerably larger than in most fluid milk markets. In 1935 the average production per day per dairy for the producers in the Maryland and Virginia Milk Producers' Association was approximately 450 pounds, which is much larger than is usually found. There is also less seasonal variation in production in the market than one normally expects. (See Table 26.) Production per day per dairy increased from 1930 to 1933, fell off a little in 1933, and has increased greatly in 1934 and 1935.

3. Disposition.

The percent of milk sold as whole milk from dairy type farms is considerably higher than that of milk sold from all farms. In several counties, for example Green County, the percent of milk sold as whole milk from dairy type farms is also low but such counties are on the very edge of the milk shed, not near other fluid milk markets, and sell their milk as butterfat to one of the few creameries shown in Figure 1. The production of milk in those counties is small as well as the number of dairy type farms. (See Tables 27 and 28.)

The column in Table 28, headed "Percent of total production sold as cream", refers to cream which is defined in the census as "that cream which was sold by the gallon" as compared with the column headed "Percent of total production sold as butterfat" which was paid for according to the butterfat content only. Very little of the milk produced in this area is sold as cream for sweet cream or manufacturing use. A large part of the milk is used on the farms where produced. In some cases this is the case because the amount produced is so small that it is not worthwhile to establish a market for it and in other cases the skim milk is worth more as feed for beef and hogs than when sold as whole milk.

D. Production, feed price, and cattle price conditions.

Because much of the cash expenditure of dairy farmers in this area is for feed, the prices of feeds and their relation to the price of milk is of great importance to the prices paid for milk by handlers.

Production conditions have not been favorable in this section so far this year. Excessive rains and cold weather up to the middle of April greatly retarded the pasture growth and since that time there has been a lack of moisture. All the spring crops were planted ten days to a month later and the ground was so hard that little progress was made. Prospects are that there will be a greatly reduced yield in crops this year. Pasture conditions were less favorable in Virginia this year than last year and in Maryland were six percent below those of last year.

Table 26. Average Deliveries per day per dairy of Maryland and Virginia Milk Producers Association 1930 - 1935.

Month	1930	1931	1932	1933	1934	1935
	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>
January	395	415	421	401	406	415
February	393	426	421	410	415	419
March	402	423	428	417	421	429
April	419	426	454	443	434	443
May	480	478	496	480	500	522
June	448	471	475	462	502	511
July	366	415	436	431	439	433
August	354	406	435	433	455	438
September	352	390	433	420	448	441
October	357	391	393	401	444	443
November	390	400	393	392	425	418
December	442	426	406	395	412	426
Average	397	422	433	424	442	445

Table 27.-- Disposition of Milk Produced on Farms in Selected Counties which Include the District of Columbia Milk Supply Area, 1929.

	Total milk produced		Whole milk sold		Farm butter sold	
	All Farms Pounds	Dairy Farms Pounds	All Farms Pounds	Dairy Farms Pounds	All Farms Pounds	Milk equivalent Pounds
MARYLAND:						
Cecil	43,821,885	30,774,679	38,979,956	29,518,055	30,289	613,352
Charles	6,236,522	288,616	419,078	201,842	19,318	391,190
Frederick	126,659,863	91,830,396	102,705,139	84,564,162	256,515	5,194,429
Montgomery	55,984,254	41,867,191	42,589,298	39,657,550	127,324	2,578,311
Prince George	14,619,596	4,612,472	6,002,843	4,276,496	32,234	652,739
Washington	49,180,209	16,584,765	33,096,128	14,662,123	278,423	5,638,066
Total (6 Co.)	296,502,329	185,958,119	223,792,442	172,880,228	744,103	15,068,087
THE STATE	754,957,097	423,794,790	559,688,963	396,187,518	2,173,009	44,228,432
VIRGINIA:						
Albemarle	24,865,154	6,803,434	6,908,939	5,206,302	122,494	2,390,847
Clarke	8,440,066	813,560	1,535,573	741,750	15,825	308,873
Culpeper	25,336,288	10,102,970	7,778,580	7,343,454	25,757	502,727
Fairfax	36,590,755	25,077,996	26,179,458	23,452,983	139,957	2,731,691
Fauquier	36,024,532	18,788,764	15,009,511	14,336,742	74,308	1,667,216
Frederick	16,578,598	2,202,976	4,187,615	1,974,732	37,565	733,196
Greene	5,701,172	370,574	42,647	1,720	23,746	680,344
King George	5,968,452	1,003,568	771,635	533,157	25,261	493,046
Loudoun	50,875,639	27,188,092	25,633,538	21,063,395	125,614	2,451,743
Madison	15,680,965	2,108,643	948,425	831,190	12,623	246,377
Orange	16,314,957	3,590,216	1,199,356	951,452	25,822	503,996
Prince William	19,839,899	12,676,520	11,364,117	11,133,956	39,592	772,760
Rappahannock	8,664,500	1,821,050	3,060,009	989,516	21,143	629,538
Spotsylvania	13,853,835	6,204,522	7,085,540	5,672,096	31,705	618,820
Stafford	8,905,532	2,432,639	3,059,226	1,764,720	28,602	775,123
Warren	5,035,257	638,438	900,609	542,600	34,265	885,654
Total (16 Co.)	298,675,601	121,823,962	115,664,778	96,539,765	784,279	16,391,951
THE STATE	1,251,512,145	312,494,591	331,439,218	252,587,753	6,860,348	133,900,768
WEST VIRGINIA:						
Berkeley	18,891,586	5,703,175	8,178,978	5,324,991	137,023	2,581,131
THE STATE	721,268,799	151,223,286	145,775,461	107,650,939	4,313,712	81,258,296

Compiled from United States Census of Agriculture, 1930.

Table 27. Disposition of milk produced on farms in selected counties which include the District of Columbia Milk Supply Area, 1929.

State and County	Cream Sold			Cream sold as Butterfat			Milk used on all Farms	
	All Farms	Milk Equivalent	Pounds	From all Farms		From Dairy Farms	Milk	Pounds
				Butterfat	Equivalent			
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
MARYLAND:								
Cecil	3,679	22,994	500		12,500			4,193,083
Charles	5,426	33,913	29,646		741,150		41,875	4,651,191
Frederick	830,659	5,191,619	177,812		4,445,300		1,299,500	9,123,376
Montgomery	39,950	249,688	101,626		2,540,650		741,200	8,026,307
Prince George	132,787	829,919	13,779		344,475		44,125	6,789,620
Washington	222,516	1,390,725	26,490		662,250		419,150	8,393,040
Total (6 Co.)	1,235,017	7,718,858	349,853		8,746,325		2,545,850	41,176,617
THE STATE	1,612,834	10,080,213	811,812		20,295,200		4,687,750	120,664,189
VIRGINIA:								
Albemarle	57,498	346,373	155,177		3,739,205		885,325	11,479,790
Clarke	19,169	115,476	185,955		4,480,843		36,145	1,999,301
Culpeper	121,640	732,771	355,963		8,577,422		2,109,060	7,744,788
Fairfax	34,188	205,952	40,802		983,181		411,518	6,490,473
Fauquier	477,716	2,877,807	296,937		7,155,109		2,027,639	9,314,889
Frederick	95,214	573,578	226,786		5,464,723		90,000	5,619,486
Greene	11,458	69,024	75,555		1,820,602		349,542	3,088,555
King George	50,114	301,892	47,053		1,133,807		248,048	3,268,072
Loudoun	997,861	6,011,211	316,762		7,632,819		1,900,072	9,146,328
Madison	125,387	755,343	289,359		6,972,506		603,277	6,758,314
Orange	411,172	2,476,940	285,306		6,874,843		905,735	5,259,822
Prince William	143,590	865,000	112,036		2,699,663		798,819	4,138,359
Rappahannock	64,529	388,729	82,550		1,989,157		283,904	2,597,067
Spotsylvania	5,914	35,627	66,668		1,606,458		324,337	4,507,390
Stafford	104,924	632,072	60,339		1,453,952		45,783	2,985,159
Warren	2,873	17,307	38,835		935,783		4,385	2,295,904
Total (16 Co.)	2,723,247	16,405,102	2,636,083		63,520,073		11,023,589	86,693,697
THE STATE	4,061,652	24,467,783	6,698,479		161,409,132		24,517,590	600,295,244
WEST VIRGINIA:								
Berkeley	43,252	251,465	148,490		3,453,256		858,070	4,426,756
THE STATE	1,153,228	6,708,814	4,061,031		94,442,581		13,514,860	393,087,647

Compiled from United States Census of Agriculture, 1930.

Table 28. - Disposition of milk produced on farms in selected counties as percent of the total milk produced in the District of Columbia Milk Supply Area, 1929.
Compiled from United States Census of Agriculture, 1930.

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State & County	Percent of total pro- duction sold as whole milk		Percent of total pro- duction sold as farm butter		Percent of total pro- duction sold as cream		Percent of total pro- duction sold as butterfat		Percent of total production used on farms	
	All farms	Dairy farms	Percent	Percent	Percent	Percent	All farms	Dairy farms	Percent	Percent
MARYLAND:										
Cecil	89.0	95.9	1.4	.05			.03			9.6
Charles	6.7	69.9	6.3	.5			11.9	14.5		74.6
Frederick	81.1	92.1	4.1	4.1			3.5	1.4		7.2
Montgomery	76.2	94.7	4.6	.4			4.5	1.8		14.3
Prince George	41.1	92.7	4.5	5.7			2.3	1.0		46.4
Washington	67.3	88.4	11.5	2.8			1.3	2.5		17.1
Total (6 Co.)	75.5	93.0	5.1	2.6			2.9	1.4		13.9
STATE	74.1	93.5	5.9	1.3			2.7	1.1		16.0
VIRGINIA:										
Albemarle	27.8	76.5	9.6	1.4			15.0	13.0		46.2
Clarke	18.2	91.2	3.7	1.3			53.1	4.4		23.7
Culpeper	30.7	72.7	1.9	2.9			33.9	20.9		30.6
Fairfax	71.5	93.5	7.5	.6			2.7	1.6		17.7
Fauquier	41.7	76.3	4.6	7.9			19.9	10.8		25.9
Frederick	25.3	89.6	4.4	3.4			33.0	4.1		33.9
Greene	.7	.5	11.9	1.2			31.9	94.3		54.3
King George	12.9	53.1	8.3	5.0			19.0	24.7		54.8
Loudoun	50.4	77.5	4.8	11.8			15.0	7.0		18.0
Madison	6.0	39.4	1.6	4.8			44.5	28.6		43.1
Orange	7.4	26.5	3.1	15.2			42.1	25.2		32.2
Prince William	57.3	87.8	3.9	4.3			13.6	6.3		20.9
Rappahannock	35.3	54.3	7.3	4.4			23.0	15.6		30.0
Spotsylvania	51.1	91.4	4.5	.3			11.6	5.2		32.5
Stafford	34.4	72.5	8.7	7.1			16.3	1.9		33.5
Warren	17.9	85.0	17.6	.3			18.6	.7		45.6
Total (16 Co.)	38.7	79.2	5.5	5.5			21.3	9.0		29.0
STATE	26.5	80.8	10.7	1.9			12.9	7.8		48.0
WEST VIRGINIA:										
Berkeley	43.3	79.4	13.7	1.3			18.3	12.8		23.4
STATE	20.2	71.2	11.3	.9			13.1	8.9		54.5

Feed prices are much more favorable this year, however, Corn averaged about \$0.18 a bushel less in May 1936 than in May 1935, oats \$0.13 a bushel less, and hay \$0.80 per ton less. The average price of seven feed-stuffs was \$7.00 lower in 1936 than in 1935. - (See Tables 29 and 30.)

The price of beef cattle has averaged somewhat higher in Virginia so far in 1936 than in the same period in 1935. In Maryland, however, the prices for beef cattle are a little lower than last year. Hog prices are considerably above those which prevailed last year in both Maryland and Virginia. (See Table 31.)

It appears that the beef and hog enterprises this year are not less favorable in relation to the dairy enterprise as compared with last year, excepting, perhaps, the beef cattle enterprise in Maryland. However, the prices for beef cattle in Maryland appear to be more in line with the prices paid in Virginia than was the case in 1935. There should be no tendency for farmers this year to shift from beef to milk production. If any shift is to take place it should appear that it should be in the direction of pork production. Health regulations, however, make difficult the growing of hogs on Washington milk farms.

E. Movement of milk to market.

Except for the milk received at the two country stations already referred to, all milk is moved direct from farms to the marketing area. Four cream shippers in the Staunton, Virginia, area ship their product by the Chesapeake and Ohio, eleven cream shippers in the Pulaski territory ship on the Norfolk and Western, and nine shippers of milk send their product to the District of Columbia on the Washington and Old Dominion. The rest of the milk and cream is brought to the marketing area by means of nearly 100 trucks. The general practice is for haulers to pick up the milk at the producer's house or barn. The necessity of making numerous stub hauls has resulted in a predominance of small trucks. The producers assume the responsibility of transporting the product into the market and to the country stations. All the prices quoted by the producers' association and by the dealers are f.o.b. Washington or the country station. Twelve of the trucks hauling milk belong to and are operated by the producers themselves. The rest are owned or operated by 65 truckers who haul more than one producer's milk. The average hauling rate for all milk delivered to Washington is approximately \$0.29 per hundredweight. These rates range from \$0.17 per hundredweight from the area in Gaithersburg, Maryland, to \$0.60 per hundredweight on milk from the territory around Timberville, Virginia. The average hauling rate on milk to the country stations is around \$0.10 per hundredweight and about 65 producers haul their own milk.

Table 29: Prices received by farmers in Maryland and Virginia for corn, oats, clover hay and alfalfa hay.

Compiled from reports of the Bureau of Agricultural Economics, Division of Crop and Livestock Estimates

Year and Month	Prices received by farmers							
	Corn per bushel		Oats per bushel		Clover hay per ton		Alfalfa hay per ton	
	Maryland Dollars	Virginia Dollars	Maryland Dollars	Virginia Dollars	Maryland Dollars	Virginia Dollars	Maryland Dollars	Virginia Dollars
1935								
January	.86	.87	.57	.58	13.00	16.50	15.60	19.50
February	.86	.88	.57	.58	13.50	16.50	15.70	19.50
March	.85	.88	.56	.63	13.80	16.50	15.40	19.00
April	.85	.88	.57	.53	13.00	15.50	14.80	18.30
May	.86	.90	.57	.60	11.80	14.00	14.50	17.30
June	.85	.90	.52	.56	11.60	13.90	14.00	16.50
July	.85	.90	.46	.51	11.00	13.20	12.20	15.30
August	.82	.90	.41	.47	12.00	12.20	12.10	14.50
September	.73	.89	.41	.46	12.50	12.40	13.40	14.50
October	.82	.88	.44	.49	11.30	12.10	13.50	14.30
November	.62	.74	.40	.43	10.90	12.70	13.30	15.30
December	.58	.71	.40	.47	10.00	11.90	13.10	14.60
Average	.804	.86	.49	.54	12.03	13.95	13.97	16.55
1936								
January	.60	.68	.41	.48	10.50	12.10	12.20	14.80
February	.62	.70	.41	.48	10.20	12.60	14.00	15.00
March	.64	.70	.42	.49	10.20	11.80	12.20	14.20
April	.63	.71	.44	.49	10.50	12.00	12.80	14.80
May	.64	.72	.44	.47	10.60	12.30	14.00	14.40
June								
July								
August								
September								
October								
November								
December								

Table 30 - PHILADELPHIA, PA: Average feedstuff prices at Philadelphia per ton, bagged in car lots.

Compiled from reports of the Bureau of Agricultural Economics, Division of Hay, Feed and Seed.

Year and Month	Standard Wheat Bran Dollars	Standard Spring Wheat Middlings Dollars	Spring Wheat Middlings Dollars	Linseed Meal 34% Dollars	Cottonseed Meal 41% Dollars	Gluten Feed Dollars	White Hominy Feed Dollars	Average Prices Dollars
<u>1935</u>								
January	32.15	31.75			39.95	38.65	36.75	35.85
February	31.90	31.15			38.30	34.42 1/2	34.00	33.95
March	30.00	29.90		34.65	36.05	32.50	32.20	32.55
April	31.55	31.70		32.40	35.65	39.70	32.35 1/2	32.22
May	31.81	32.38	35.50	31.95 1/2	34.50	30.50	32.50	32.73
June	26.81	28.31	34.95 1/2	31.50	33.23	29.50	31.25	30.79
July	23.80	25.50	34.40	27.60	28.95	27.30	28.60	28.02
August	22.38	23.63	33.81	26.00	24.63	26.00	28.75	26.46
September	21.38	21.81	29.00	27.00	25.56	24.75	29.25	25.54
October	22.00	22.80	28.20	28.50	29.00	26.80	30.20	26.79
November	22.38	22.38	25.53	28.38	28.69	28.50	27.06	26.13
December	23.10	23.30	27.00	28.70	27.70	28.80	26.50	26.44
Average	26.60	27.06	31.05 2/3	29.67 3/4	31.85	29.79	30.76	29.79
<u>1936</u>								
January	22.38	22.44	25.75	28.63	27.06	27.50	25.13	25.56
February	22.31	22.31	24.63	28.25	26.44	25.13	22.13	24.46
March	22.60	22.30	25.40	28.50	26.70	23.45	22.40	24.48
April	24.13	23.94	26.81	28.75	27.94	21.50	21.50	24.94
May								
June								

1/ Interpolated.
2/ 5 month average.
3/ 10 month average.

F. Market organization.

1. Producers' association.

There has been some kind of a producers' association in the market since 1907, when some of the milk producers organized as "The Milk Producers' Association of Maryland, Virginia, and the District of Columbia." The association had no paid officers and amounted to little more than a general group meeting from time to time to discuss price changes and other issues that might arise. The association was organized and incorporated in its present form in 1920. At this time a manager was employed, producers signed a membership contract, and the responsibility of marketing the milk of its members was undertaken.

The association for a time had a difficult time establishing itself as an effective bargaining factor in the market. At the present time its membership numbers nearly 1,150 (see Table 32), producing over 85 percent of the total supply for the market. (See Tables 33 and 34.)

The milk sheds of Baltimore and the District of Columbia are so closely related that some plan of coordinating the marketing of milk in the two markets seemed feasible. Consequently, in January 1930 the Baltimore and Washington producers' associations organized the Eastern States Milk Marketing Association, which organization handles all relationships between the two markets; but each association has its own reports, membership, board of directors, officers, finances, and sells only its own milk on its own market. Cooperative associations in other markets maintain contact with the Eastern States Milk Marketing Association.

2. Handlers in the marketing area.

Over 85 percent of all milk in the marketing area is handled by dealers purchasing their supply from members of the Maryland and Virginia Milk Producers' Association. Five handlers purchase their entire supply through the association and one handler purchases part of his supply through the association and the other from producers who are not members. There are two other handlers who purchase milk from producers not members of the association. Fourteen producers sell their milk direct to consumers.

G. Health regulations.

Congress has provided the law and the agencies for its administration through which producers are required to maintain very high standards of sanitation in the production of milk for the Washington market. The Health Department of the District of Columbia issued on February 17, 1932, a detailed "Interpretation of Dairy Farm Score Card" for the use of its inspectors in the country. Every farm is inspected

Table 32 - WASHINGTON, D. C.: Number of active member-producers of the Maryland and Virginia Milk Producer's Association, Inc.

Compiled from the annual report of the Maryland and Virginia Milk Producer's Association, 1935.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Av.
1929	960	963	963	960	960	956	958	961	977	1002	1006	1008	973
1930	994	1004	1006	1018	1025	1023	1019	1021	1023	1034	1033	1032	1019
1931	1164	1220	1228	1230	1238	1232	1230	1229	1234	1236	1227	1224	1224
1932	1212	1217	1210	1205	1206	1204	1198	1195	1188	1180	1171	1169	1196
1933	1156	1153	1141	1139	1143	1140	1143	1142	1145	1144	1142	1140	1144
1934	1137	1129	1128	1126	1136	1136	1136	1133	1134	1135	1135	1133	1133
1935	1148	1142	1143	1132	1160	1158	1154	1147	1144	1135	1134	1127	1144
1936													

Table 33.-- Estimated Deliveries Per Day of All Producers Shipping Milk to the District of Columbia and Percentage Supplied by Members of the Maryland and Virginia Milk Producers' Association. ^{1/}

Month	1 9 2 9		1 9 3 0		1 9 3 1		1 9 3 2		1 9 3 3		1 9 3 4		1 9 3 5	
	Gals.	%	Gals.	%	Gals.	%	Gals.	%	Gals.	%	Gals.	%	Gals.	%
Jan.	59,259	65.9	61,506	74.2	64,502	87.0	63,455	93.6	58,889	91.6	60,288	88.9	62,756	88.3
Feb.	56,972	66.6	61,238	75.0	66,182	91.2	63,179	94.3	60,450	91.4	61,921	88.0	63,538	87.6
Mar.	58,158	67.0	62,578	75.1	65,450	92.1	64,063	94.0	61,129	90.4	62,916	87.9	64,840	87.9
Apr.	60,748	67.3	65,258	75.9	65,918	92.5	67,901	93.8	65,274	90.0	64,814	87.6	67,183	86.9
May	68,676	67.9	74,772	76.5	73,538	93.5	74,029	94.0	70,699	90.3	74,833	88.2	78,961	89.1
June	65,520	67.9	69,814	76.3	72,259	93.3	70,784	94.0	68,145	89.9	75,336	88.1	77,457	88.8
July	59,888	68.7	56,950	76.1	63,611	93.4	64,744	93.8	63,627	89.9	65,892	87.9	65,772	88.4
Aug.	56,073	69.3	55,206	76.2	61,974	93.7	64,464	93.8	63,931	89.9	68,453	87.5	66,555	87.8
Sept.	56,691	71.0	54,806	76.4	59,298	94.3	64,058	93.4	62,074	90.0	67,522	87.4	66,946	87.6
Oct.	59,967	73.3	55,744	77.1	59,247	94.8	57,948	93.1	59,322	89.8	66,977	87.4	67,208	87.0
Nov.	56,037	74.2	58,826	77.0	60,496	94.3	57,811	92.7	58,140	89.6	64,220	87.3	63,423	86.7
Dec.	60,166	74.9	68,876	77.0	64,202	94.4	59,566	92.5	58,614	89.3	62,366	87.1	64,728	86.3
Total	60,160	69.5	62,310	76.1	64,763	92.8	64,283	93.7	62,562	90.1	66,357	87.7	67,547	87.6

^{1/} Based on actual figures for members and assumption that the average non-member producers shipped the same amount per day as the average member producer.

Source: Maryland and Virginia Milk Producers Association.

Table 34.- Total Deliveries of Members of the Maryland and Virginia Milk Producers' Association, 1930 - 1935, Inclusive.

Month	1930	1931	1932	1933	1934	1935
	<u>Gallons</u>	<u>Gallons</u>	<u>Gallons</u>	<u>Gallons</u>	<u>Gallons</u>	<u>Gallons</u>
January	1,414,782	1,740,494	1,841,009	1,671,800	1,661,748	1,716,999
February	1,285,732	1,690,392	1,727,017	1,540,648	1,526,553	1,558,847
March	1,457,760	1,869,652	1,866,027	1,713,302	1,713,862	1,766,038
April	1,485,797	1,828,474	1,910,223	1,761,571	1,703,389	1,751,401
May	1,773,208	2,131,632	2,156,957	1,978,756	2,047,200	2,180,461
June	1,598,749	2,023,339	1,995,821	1,838,120	1,990,611	2,063,805
July	1,343,218	1,841,672	1,882,073	1,773,844	1,796,206	1,803,072
August	1,303,759	1,799,844	1,874,069	1,781,837	1,857,123	1,811,957
September	1,255,873	1,678,149	1,795,528	1,676,524	1,771,378	1,759,156
October	1,332,142	1,740,883	1,672,027	1,651,727	1,815,384	1,812,402
November	1,404,588	1,711,354	1,607,063	1,562,454	1,682,228	1,654,851
December	1,643,594	1,878,856	1,708,832	1,622,339	1,683,943	1,732,044
Total	17,299,202	21,934,741	22,036,646	20,572,922	21,249,625	21,611,033

Source: Maryland and Virginia Milk Producers' Association.

and scored regularly three to four times each year. Permits are issued to each farm each year and the farm score must be above 70 at each inspection to keep the permit in force. Interpretation of the score card is such that each producer in order to hold his permit must have a well-built barn, separate three-room milk house provided with a boiler and cabinet sterilizer, and have mechanical refrigeration or an ample supply of ice, since milk must be cooled to 50°, stored at that temperature and reach the handler's platform with no can containing milk over 55°.

All cream sold for consumption as such is required to come from milk produced on farms holding permits under the above conditions. There now remain about thirty producers, out of a number formerly much larger, who make their deliveries in the form of cream. These producers likewise, even though a few are more than three hundred miles away, undergo the same inspection as though they shipped milk.

Evidence of the uniform high quality of milk delivered to Washington handlers is contained in Table 35 showing average farm scores and bacteria counts of milk received by handlers taken from the regular monthly bulletin of such information for November 1935. The monthly publication was discontinued after that month due to lack of funds but the records are open to the public.

Table 35.- Average Farm and Cattle scores and Bacteria count Pasteurized Milk Supply of Handlers, month of November, 1935.

Dairies	Description	Average cattle score	Average farm score	Average daily score	Average percent butterfat	Average number bacteria	General Average based on these figures
Alderney, Green Meadow and Fairfax Farm Dairies.	Pasteurized milk	96.91	92.63	97.10	4	3,883	96.10
Arlington County Dairy	Pasteurized milk	98.20	93.60	99.05	4.4	1,550	98.19
Arlington County Dairy	Raw milk.....	99.00	99.10	.....	4.2	4,462	96.00
Chestnut Farms-Chevy Chase Dairy, Inc.	Pasteurized milk	98.21	95.24	99.87	4.3	1,766	97.22
Chestnut Farms-Chevy Chase Dairy, Inc.	Certified milk....	100.00	99.10	.....	4.4	1,000	99.82
Embassy Dairy-Walker Hill Dairy.	Pasteurized milk	96.95	90.66	99.82	4.3	3,400	95.40
Highland Farms Dairy-Model Farms Dairy...	Pasteurized milk	98.60	94.30	98.06	4.1	4,700	95.37
Thompson Dairy.....	Pasteurized milk	97.83	96.30	96.10	4.3	1,283	97.27
Thompson Dairy.....	Pasteurized milk	98.21	94.82	99.60	4.3	1,967	97.66
Thompson Dairy.....	Raw Milk.....	99.00	98.00	.....	4.4	14,000	97.00
Thompson Dairy.....	Certified milk....	100.00	99.10	.....	4.7	1,700	99.82
Wakofield Dairy..... (Simpson Bros.)	Pasteurized milk	97.96	90.81	98.59	4.1	2,717	93.74

Sources: Milk Report November 1935, Health Dep't., District of Columbia.

Part VII

Conclusions Relative to the Minimum Prices to
Producers as Set Forth in the Proposed Mar-
keting Agreement and Proposed Order.

A. Class I price.

The proposed Class I price of \$3.08 per hundredweight is designed to be a price that adequately compensates producers so that there will be assured an adequate supply of milk of the high quality standards required by the District of Columbia Health Department. Such a price appears to be in line with the prices paid in the fluid milk markets whose milk sheds overlap and are adjacent to the area necessary for supplying the Washington market with its needs. It is the same price that has prevailed in the Market since February 1, 1935.

Production conditions do not appear quite as favorable as they were last year but as yet there has been no more than normal seasonal changes in production.

Demand conditions, as indicated by employment, payroll totals, and the report of the District Reserve Bank, appear to be very favorable and on the upgrade so that with a continuance of the same Class I price some increase in consumption should be expected.

B. Class II price.

Because handlers must ensure themselves of an adequate supply of milk for fluid milk and cream use they must agree to accept from producers some milk which they are not able to use as Class I. This excess milk must be sold in competition with cream for ice cream originating on farms not under the inspection of the District of Columbia. The quality of the Class II milk is the same as that used for Class I and the producer is entitled to the full amount that such milk will bring because although he must produce it he cannot get the full Class I price. The handler besides receiving and handling such milk for which a compensation is provided, performs no services for which he should be entitled to a return. The cooperative association in the market will at all times accept all such milk at the price filed by it with the market administrator. The ice cream manufacturers are also at all times in need of fluid milk or cream and must regularly bring cream in from other areas.

Because the milk or cream used as ice cream need not be produced on farms so rigidly and regularly inspected as those farms from which milk and cream is supplied for Class I use the Health Department has ruled that in no plant where Class I milk is handled can ice cream be manufactured. Hence all milk used for ice cream must be moved out of the fluid milk plant.

Class price adjustments for country stations and transportation.

To cover the costs of operating a country station and for transporting the milk from the country station to the marketing area handlers are allowed \$.35 per hundredweight on Class I milk. The services and accommodations provided by a country station are an expense to handlers but are of great benefit to producers. The allowance is the one that has been customarily used in the market for such services.

On Class II milk handlers are allowed \$.35 per hundredweight if such milk is sold as milk and if sold as cream they are allowed to keep the skim milk. The allowance is made to cover the cost of receiving and handling such milk.

Part VIII

Apportionment of Proceeds of
Milk Sales Among Producers

Before discussing the method of apportioning the proceeds of milk sales among producers it will be well to examine briefly methods used in the past by the Maryland and Virginia Milk Producers Association and to note the difficulties which were encountered in their treatment of the problem.

The Maryland and Virginia Milk Producers Association was organized in its present form in 1920. From 1920 to August 1, 1921, the association had much difficulty in making negotiations with dealers and becoming an effective bargaining organization on the market. The effectiveness of the association's bargaining was considerably increased in 1921 when on August 1 of that year it operated a plant to take care of the surplus milk not marketed by handlers. Milk was priced to handlers at a flat price and the association stood ready to take care of some of the surplus. In 1924 a second surplus plant was built and opened in Frederick, Maryland. Even with the second plant, however, the association could not handle all the surplus in the market and handlers would not pay a fluid milk and cream price for milk that had to be used for manufacturing.

Another difficulty also existed because producers were also paid on a flat price basis. Producers who make deliveries of milk to the market in accordance with the demand for fluid milk and cream, that is, a fairly even supply from season to season, are penalized by the effect on their average price of the large increase in production of milk by producers who have their cows freshen in the spring and take advantage of the pasture season and then do not produce the same amount of milk in the fall and winter when production is more expensive.

The association attempted to correct both these problems at once by introducing a basic and surplus plan of the payment for milk on March 1, 1924, which was used for both pricing milk to handlers and for paying producers. According to this plan a so-called base was established for each producer which was equal to the average monthly deliveries during the months of October, November, and December. For the amount of milk up to the basic amount the producer was to receive each month of the year a basic price agreed upon from time to time by the handlers and the association. For all milk delivered above that amount the dealer paid and the producer received a surplus price negotiated at the end of each month between the association and the handlers which reflected the utilization above or below base and the manufacturing value.

The plan during that time was not unsuitable for the Washington market for two reasons. The first of these was that the amount of basic milk was approximately equal to the amount of milk sold as fluid milk and cream with only a small amount of surplus on the market evenly distributed among handlers. In the second place the association was operating two surplus plants and the handlers could at all times turn back to the association all milk they did not wish to keep.

On April 1, 1927, probably because there was not enough surplus milk being handled at its plants for efficient operation, the Association came to

an agreement with the handlers whereby the handlers accepted the responsibility of handling all the surplus milk on the market. The two surplus plants were then closed and later disposed of.

This plan did not function as well as was expected because the amount of basic milk on the market increased to the extent where it considerably exceeded the amount sold by handlers as fluid milk and cream. The handlers now did not have the alternative of turning back to the association all milk not wanted by them. To alleviate this situation a revision of bases was made in 1928 so that each producer's base was made equal to 90 percent of his average monthly deliveries during the months of October, November, and December in the years of 1925, 1926, and 1927. Further attempts to make the basic quantities received by each handler more nearly equal to his fluid milk and cream sales consisted of shifting producers with a large percentage of their milk being delivered as basic milk to those handlers using a large percentage of milk received as fluid milk and cream. Some milk shippers were from time to time requested to ship their milk as cream.

However, it became increasingly difficult to keep a close relationship between the basic milk received by a handler from producers and the amount of milk used by such handler as fluid milk and cream. Finally on April 1, 1933, after a severe decline in the sales of fluid milk and cream so that there was a much wider discrepancy between such sales and the amount of basic milk, the association introduced a cost adjustment fund. By means of this adjustment account those handlers who were receiving less basic milk from producers than the amount of milk they used as fluid milk were to pay the full basic price for all milk used as fluid milk. This was accomplished by their paying to their own producers the basic prices for their basic milk and to the association the basic price for all milk used as fluid milk but received from producers as excess. On the other hand, if a handler received more basic milk from producers than he used as fluid milk he was to pay the full basic price to all producers for their basic milk but received from the association the difference between the basic and surplus prices for that amount of milk paid for at basic prices and used as surplus milk.

The adjustment fund, however, worked imperfectly and the basis for payment appeared to remain that of paying basic prices for all basic milk received from producers irrespective of the use made of it by handlers.

On May 1, 1933, the two-price plan of pricing milk and of paying money to producers was revised somewhat and a three-price plan was used in its stead. The reason for this change appeared to be that as a result of various revisions in the calculation of bases the amount of basic milk in the market did not cover all the fluid milk and cream sales although a fairly nice adjustment had been worked out between the basic milk received by handlers and the amount used by such handlers as fluid milk and cream. The result was that the surplus price became a blended price consisting of a high fluid cream price averaged with the manufacturing value of milk. This three-class price system, however, continued only for the last eight months in 1933 and then the association reverted to the two-price plan which continued until February 1, 1935.

On February 1, 1935, a new plan of selling milk to handlers was introduced. The association again accepted the responsibility of the surplus milk in the market. The handlers since that date have paid one price of \$3.08 per hundredweight for all milk retained by them and all milk they did not want they turned over to the association for disposition. This same plan is now in operation in the market.

It can readily be seen that the desire of the market to arrive at some method of pricing milk to handlers according to use made of such milk and at the same time to pay producers an equitable share of the market proceeds has been one of the principal problems in the market. The treatment of the former in the proposed marketing agreement and order has already been discussed and the treatment of the latter is now to be explored.

The Agricultural Adjustment Act, as amended, provides for two methods of payments to be made to producers. The first of these is for all handlers to pay all producers in the market a uniform price for milk of the same grade and quality. The second of the methods is for each handler to pay a uniform price to all his producers in the market for milk of the same grade and quality.

There is provided in Article VII of the proposed marketing agreement and proposed order the mechanics necessary to the first plan whereby the total proceeds from the sale of all milk of producers to all handlers are pooled and then equitably apportioned among all producers in accordance with their deliveries during a representative period of time accomplished by a method commonly known as the "base rating plan".

A. Pooling of all proceeds from the sale of milk to handlers.

As the classification of milk according to use and payment of milk according to classification has put all handlers on the same equitable competitive basis with respect to the prices to be paid producers for milk by requiring all handlers to pay the same price for milk used in each use classification, so this plan of equitably apportioning the proceeds of milk among producers puts all producers on an equal competitive basis with respect to the prices received for their milk. It is simply an extension of the plan commonly used by each handler, and by cooperative organizations. If a creamery sold 75 percent of its milk as Class I and 25 percent as Class II, it did not pay 75 percent of its producers the Class I price and 25 percent the Class II price. Such a method obviously would not have been equitable and producers would have objected strenuously. Gaumnitz and Reed have shown 1/ that it is natural to expect that if some producers who meet the health requirements and production standards required for Class I milk do not get a share of that market, they will undertake to do so.

Cooperative organizations in many markets have recognized this problem and have attempted to give all producers an equitable share of the fluid milk and cream market.

In the District of Columbia, the cooperative as indicated above has

1/ See Appendix A.

tried to accomplish this end by a more formal recognition of the fact that even the producers whose milk meets the health requirements of the District of Columbia in the long run would become associated with those handlers highly specialized in the fluid milk and cream trade by actually shifting their producers from one handler to another so that the Class I milk would be more equitably apportioned among producers. However, because of the difficulty of shifting producers due to their location and because of the varying amounts of such sales by handlers, such means are not always practicable or complete in their effect. The proposed marketing agreement and proposed order provides for a plan which will effect what would be the result in the long run if economic forces were allowed to work themselves out to their fullest extent, i.e. by giving to every producer who is entitled to a share in the Class I market his share in the apportionment of the proceeds of milk in that market.

The milk from some producers in the market is not needed at all seasons of the year yet it is necessary that such producers be completely equipped and inspected the whole year in order to produce milk of the required quality in the seasons when their milk is needed. In order that these producers will be enabled to meet this expense and trouble they must be allowed and are entitled to share in the fluid milk and cream market during the whole year. Reed and Gaumnitz have shown that if such is not the case the seasonality of prices would be very marked and would cause much disturbance in the market. Besides the competition of such producers for the market there is the competition for the market by new producers who have so adjusted their production and are producing such quality of milk that they are now desirable producers for fluid milk handlers. Then, too, there is the competition of those few who as in other businesses prefer making individual gains at the expense of others to having a stable market. Some of this competition is desirable and such constructive competition is fostered by the plan and not curbed by the destructive competition. Experience has shown that much of the competition is bound to be destructive and it is such competition that must be regularized.

One reason for destructive competition is the desire to pass to others the expense of carrying the excess of milk which is necessary in the market. There is needed at all times during the year some excess milk to cover the daily fluctuations in the sale of fluid milk and cream. Then in the flush season of production there is a considerable amount of such excess milk produced in the market. It has been shown by Gaumnitz and Reed that it is an ineffective procedure in the market as a whole to attempt to get rid of the excess milk by lowering the price. Such a dropping of the price might also deter producers from maintaining their equipment and herds at the level established for the District of Columbia as authorized by Congress, and even from continuing to produce enough milk for the market in the short season of production. With considerable excess milk in the market at certain times of the year and some excess at all times, certain producers are inclined to pass to others the expense of carrying the surplus.

These producers are willing at times even to accept prices below what is actually needed by them to cover their operating expenses in the hope of getting a larger share of the fluid milk and cream market. Such a condition as this incites destructive price cutting by other groups and creates a very unstable market.

Assume that the Class I price is \$3.00 and the Class II price \$1.00. Assume also that Class I milk is 60 percent of the total sales, and Class II milk 40 percent. Then a group of producers in the market carrying its share of the surplus would receive per hundredweight the following:

60 pounds as Class I	@	\$3.00	-	\$1.80
40 pounds as Class II	@	1.00	-	<u>.40</u>
Composite price per hundredweight				\$2.20

In order that all producers will continue to deliver an adequate supply high quality of milk required for Class I milk, it is assumed that handlers must pay \$3.00 for Class I milk. But, in the short run, with a fixed investment, certain producers decide that their position will be improved by accepting a lower price for all or part of the milk needed for Class I. If these producers accepted from "chiseling" handlers 25 cents less than the established Class I price and thereby were able to sell 20 percent more milk as Class I, then the return to these producers would be:

80 pounds as Class I	@	\$2.75	-	\$2.20
20 pounds as Class II	@	1.00	-	<u>.20</u>
Composite price per hundredweight				\$2.40

This group will thus have undersold the market and yet, by so doing, will have increased its composite return by 20 cents per hundredweight.

But this group could increase its Class I sales, assuming no increase in total Class I sales in the market, only at the expense of other producers in the market. The other group of producers in the market would immediately be asked by their handlers to accept a price for Class I milk commensurate with that accepted by the smaller group. By successive steps of this kind the price of milk is lowered to a level which cripples the purchasing power of producers and which in time will endanger the milk supply. The proposed marketing agreement attempts to eliminate such practices among handlers by requiring them to pay for the milk according to the use made of it and among producers by equitably distributing the proceeds of sales among all producers in the market.

The actual operation of the plan to apportion returns among producers works exactly as if all handlers paid into the market pool the total value of: (1) their Class I milk times the Class I price plus the value of the Class II milk. The total amount of this pool is then divided among producers according to some equitable plan, which, for this market, is a base-rating plan. The market administrator's office acts merely as a clearing house for the transactions.

There remains room for competition among producers to make additional gains for themselves through superior quality and efficiency because the prices established are minimum prices. And after the milk has passed the receiving room door the handlers compete with each other on the basis of efficiency and any gains so made are not shared with the rest of the market.

Section 1 of Article VI provides for the computation of the total value by classes of all the milk purchased by any handler to determine his total obligations to all producers as a group for milk purchased. The sum so computed becomes, when corrected by the net amount of additions or deductions to individual producers to compensate for differences in butterfat content of milk delivered by each producer, the total cost of all milk received the requirements for the payment of which are set forth in Article VII on the basis of the computations set forth in Article VI. Paragraph 1 of section 2 provides for combining into one total the obligations computed for all handlers who are not in arrears as to any payment for the previous delivery period to ascertain the total market pool or the total amount of money to be distributed among producers by means of the uniform prices, the computation of which is provided in the remainder of section 2. If a handler should fail to pay into the market administrator that part of his total obligation which is to be paid to producers by way of the market administrator, the paying out of the pool will be reduced by that amount. If a handler has so failed in one delivery period, it is reasonable to expect that he may repeat his failure in the next. Experience in operating market pools under licenses has shown that handlers will tend to make their reports and then fail to make the payments, making necessary a further guide to the makeup of the pool than that of having a report in hand. Such a procedure, prescribed for the market administrator, in no way relieves the handler in his violation of the order, penalties for which are provided in the Agricultural Adjustment Act, as amended. Thus is the market administrator instructed as to the make-up of the total market pool.

B. Base Rating Plan.

Heretofore the discussion has shown that all milk in the market is priced to handlers in accordance with the purpose for which the milk was used by them, and that all proceeds from the sale of milk are pooled. The economic basis for such pooling and pricing has been pointed out in detail in previous discussion and in the paper by Gaumnitz and Reed in Appendix A. The proposed marketing plan must now provide a method of equitably apportioning the proceeds of the sales of all milk of all handlers in the market among all producers in the market. An understanding of the "base rating plan", embodied in sections 4 and 5 of Article VI, is necessary to comprehension of the remainder of the computations prescribed in section 2.

It has been pointed out that in most markets the sales of fluid milk and cream vary much less on a seasonal basis than does production. Hence, during the short season of production, milk produced in the supply area is more nearly equivalent to the fluid milk and cream needs of the marketing area than is the case in the flush seasons of production when production is considerably in excess of fluid milk sales. The production of individual producers making up the total production of the market varies markedly with respect to seasonality of production.

Many producers who have long been producing milk for fluid milk consumption produce a fairly constant volume of milk throughout the year and hence their milk is much more acceptable to the fluid milk distributor because then he does not need to carry any excess milk with the accompanying

expense of equipment to utilize such milk nor does he need to incur expense and trouble of adding producers in short seasons and dropping them in flush seasons. He can adjust his purchases of milk to his fluid milk and cream sales much more economically and efficiently. Hence the calculation of a producer's base on the basis of a season when production is short and milk is more in demand by handlers for the fluid milk and cream trade is an equitable means of prorating the proceeds of fluid milk and cream sales to producers for it is only that amount of milk that he can be depended on to produce every month of the year.

Producers are at liberty to increase or decrease their production of milk at any or all seasons of the year. It is probable that some producers will find that it is profitable for them to produce more milk in flush seasons and others will find it more profitable to produce more milk in the short seasons. Others may find it more advantageous to produce an even flow of milk throughout the year. It is the production of this last group of producers which is of greatest demand among handlers. The percent of feed purchased, the percent of cattle purchased, and the type of farming practiced by a producer, are some of the factors that will determine which is the most profitable seasonality of production for him. To produce milk evenly throughout the year requires skill and expense since the natural tendency of cows is to freshen in the spring and produce a heavy milk flow when grass is plentiful.

That the base-rating plan is a commonly accepted market mechanism is evidenced by the large number of milk markets wherein the proceeds of sales to handlers are prorated to producers through the base-rating plan. On the basis of available information, it appears that the base-rating plan was started in Baltimore, Maryland, in 1918. Since that time, the base rating plan has been instituted in a large number of important milk markets, and has come to be recognized as an equitable method of prorating to producers the proceeds of sale to handlers. (See Table 36.) Table 36 shows the number of markets operating under the base-rating plan, by years 1918 to 1934. The use of this plan of prorating to producers the proceeds of sales to handlers spread slowly and by 1929 eleven markets were operating under the plan. By 1933, the number of markets operating under the plan had increased to 28, and in 1934, 35 markets were operating under the plan. The development of the base-rating plan has not been limited to any one section of the country, but is used in at least seventeen different states from Massachusetts to California and Georgia to Michigan.

Table 36: Milk markets operating with base-surplus plans 1/ as a part of the market structure, and date of institution of base-surplus plan on these markets, as of April 15, 1936.

Market	State	Effective date of license	Year base-surplus plan was established (approximate)
Philadelphia <u>2/</u>	Pennsylvania	Aug. 25, 1933	1919
Chicago	Illinois	Feb. 5, 1934	1929
Des Moines	Iowa	Feb. 14, 1934	1930 <u>3/</u>
Omaha-Council Bluffs	Nebraska-Iowa	Feb. 23, 1934	Feb. 23, 1934 <u>4/</u>
Evansville	Indiana	Feb. 26, 1934	1932
St. Louis	Missouri	Mar. 2, 1934	1930 <u>5/</u>
Boston	Massachusetts	Mar. 16, 1934	1930 <u>6/</u>
Lincoln	Nebraska	Mar. 17, 1934	1934
Wichita	Kansas	Mar. 17, 1934	Mar. 17, 1934 <u>7/</u>
Greater Kansas City	Missouri-Kansas	Mar. 17, 1934	1931
Detroit	Michigan	April 1, 1934	1923 <u>8/</u>
Newport	Rhode Island	Apr. 1, 1934	1923
Providence	" "	Apr. 1, 1934	1931
New Bedford	Massachusetts	" " "	1931
Fall River	"	" " "	1931
Richmond	Virginia	May 1, 1934	1930
Leavenworth	Kansas	May 16, 1934	May 16, 1934
Quad Cities	Iowa-Illinois	June 1, 1934	July 1933 <u>9/</u>
Louisville	Kentucky	" " "	1929 <u>10/</u>
Los Angeles	California	" " "	Feb. 1926 <u>11/</u>
Ann Arbor	Michigan	July 1, 1934	1923 <u>12/</u>
Alameda County	California	" " "	1930
Battle Creek	Michigan	" " "	Sept. 1933
Bay City	"	" " "	May 3, 1934
Flint	"	" " "	" " 1934
Grand Rapids	"	" " "	1923
Kalamazoo	"	" " "	1933
Lansing	"	" " "	1930 <u>13/</u>
Muskegon	"	" " "	1930
Port Huron	"	" " "	July 1, 1934 <u>14/</u>
Saginaw	"	" " "	1927
Baltimore	Maryland	Aug. 1, 1934	1918
Savannah	Georgia	Aug. 16, 1934	1929
Tulsa	Oklahoma	Aug. 21, 1934	Nov. 11, 1934 <u>15/</u>
San Francisco	California	Oct. 2, 1934	1930
Southern Illinois	Illinois	Nov. 1, 1934	1932
Atlanta	Georgia	Dec. 1, 1934	1932 <u>16/</u>
San Diego	California	Feb. 1, 1935	1932
Washington	Dist. of Columbia		March 1, 1924

Compiled in most cases from transcripts of hearings for proposed marketing agreements for milk.

1/ Sponsored in every case by a cooperative association of producers in the market.

Continued.

- 2/ Operating under the "old" license policy.
- 3/ Base-surplus plan dropped from license December 5, 1934.
- 4/ Apparently no base-surplus plan prior to the license.
- 5/ Base-surplus plan discontinued under license as of November 16, 1934.
- 6/ There had been in effect for several years another plan prior to the present one.
- 7/ No base-surplus plan prior to license.
- 8/ Horner, J. L., Michigan State College, Special Bulletin No. 170, page 31.
- 9/ Abandoned in March 1934. Added to license September 1, 1934.
- 10/ Introduced about 1929 but discontinued in fall of 1930. Reestablished in later years.
- 11/ Source: U.S.D.A. Technical Bulletin No. 179, Cooperative Marketing of Fluid Milk, by Hutzel Metzger.
- 12/ Abandoned after several years. Reestablished in 1930.
- 13/ Operated only temporarily. Effected again in June 1934.
- 14/ The base-surplus plan had been used over a small part of the market for several years previously.
- 15/ Established as a license feature November 5, 1934.
- 16/ Two early attempts failed. Reestablished in February 1934.

The principle of the base-rating plan is not new in the District of Columbia as has already been indicated. The pricing arrangements of the Association clearly involved the principle of base-rating modified by a partial employment of the classification for use idea. The difficulty of securing from producers an adequate supply of milk for fluid milk and cream needs during the fall months is a matter of common knowledge in the Washington milk shed of which fact the figures in Table 13 stand as evidence. All that has been said about this matter in general is accentuated in this market and supports the method of determining bases of producers set forth in section 5 of Article VI, of the proposed Marketing Agreement and Order. Section 4 states that the base--that part of his deliveries for which each producer will receive a base price--will be the portion of his deliveries during any delivery period which falls within a quantity equal to the number of days on which he delivered milk times the figure derived, as indicated below, from his deliveries during the fall months, October, November, and December of the previous year, as a representative period of time.

Section 5 sets forth that the figure for determining bases for the part of 1936 following the effective date of the plan shall be 75 percent of each producers average delivery per day during the fall months of 1935 with a proviso that such a figure shall not be greater than 90 percent of his deliveries during the fall months of 1934. The provisions that the Class I price will be paid to producers invariably for milk represented by the bases of producers is discussed further on. Study of table 9 makes apparent the equitability of returning to the producer in 1936 a higher price throughout the year in accordance with the milk he delivered in the Fall of 1935, out of which the market used approximately three-fourths for milk and one-fourth for cream, only five percent of all milk falling into Class II. (See tables 13 and 22.) The limitation to 90 percent of 1934 Fall deliveries puts a reasonable limit on the share of the Class I price during 1936 passed to a producer whose deliveries happened to be exceptionally high in the Fall of 1936.

Paragraph 2 of section 5 provides for the determination of bases for each year subsequent to 1936 on the same principle as for 1936. It has been seen that bases for 1936 are to be determined with respect to a time when total deliveries very nearly balanced fluid milk and cream needs of the market. The base of a producer remains the same for subsequent years if he delivers his base and one-third more milk during the fall months to take care of the approximate additional Class I needs of the market or in other words, if his deliveries are the same as in the previous year. If he delivers less his base will be 75 percent of what he delivers and if he delivers more, his base will be increased by his proportionate share, with other producers who deliver more than in the previous Fall, of the total quantity of milk which will make the total of bases during each delivery period approximately 75 percent of Class I milk. Each producer is thus assured of return to him on a quantity of milk delivered throughout each year fixed by his deliveries and the experience of the market during the months of October, November, and December preceding that year.

Paragraphs 3 and 4 of the same section 5 provide for the determination of bases for those few producers who begin to deliver milk for the first time sometime during a year or for whom delivery records may not be available covering the previous October, November, and December by reason of being temporarily out of production, selling in another market or other reasons. It appears reasonable that such a producer should have his base determined for the remainder of the then current year as that part of his total deliveries equivalent to the composite proportion of base to total deliveries existing for producers whose bases have already been determined on experience during the previous October, November, and December. The base of each such producer for the next year will be determined by the experience of the market in October, November, and December like all the rest of the producers.

C. The Pool Computations.

With the implications of the base-rating plan clear and having in mind the provisions of Article VII which are discussed further on, it becomes clear that out of the total amount of the market pool must come first the amount of the payments to be made at the Class I price for the bases of all producers. Paragraph 2 of section 2 of Article VI therefore provides that the Market Administrator subtract such amount from the total pool. The remainder of the pool is to be divided over the remainder of the milk as provided in paragraph 3. The resulting figure would, if no human element existed be the price to be paid producers for milk delivered in excess of base each delivery. Errors will inevitably creep in and delays of one sort and another will occur in the clearing payments required by paragraph 4 of section 1 of Article VII so that the Market Administrator is directed, in paragraph 4 to withhold 2-3 cents of this excess price in order that he may be able promptly to pay to those handlers who are to receive clearing payments under paragraph 4 of section 1 of Article VII and, in paragraph 5 to add an amount which will distribute the money which has come in late from past pools.

With these computations completed the Market Administrator is directed, in paragraph 6, to make them public on or before the 10th day after the end of the delivery period in such completeness as will not contravene the provisions of the Act with respect to confidential information and to notify all handlers of the excess price computed. Handlers can then proceed to make up their checks to producers, producers and the public in general are informed as to supply and sales conditions in the market, and producers know what price to expect on their checks.

In order that the computations may be more clearly understood and in preparation for later discussion of the provisions of Article VII setting forth the payments to producers, both may be illustrated by an example assuming that three handlers operate in the market and that the average value of cream recovered from Class II Milk is \$11.55 per can, equivalent to \$1.40 per hundredweight of milk.

The receipts of the three handlers were as follows:

		<u>Base</u>	<u>Excess</u>	<u>Total</u>
Handler A	at city plant	500,000 lbs.	200,000 lbs.	
	at country station	250,000 "	100,000 "	1,050,000 lbs.
Handler B	at city plant	100,000 "	40,000 "	140,000 "
Handler C	at city plant	30,000 "	4,000 "	34,000 "
		<u>880,000 "</u>	<u>344,000</u>	<u>1,224,000</u>

Their utilization of this milk and its value for each handler may be computed pursuant to section 1 of Article VI as follows:

		<u>Class I</u>				<u>Class II</u>		
	<u>Pounds</u>	<u>Price</u>	<u>Value</u>		<u>Pounds</u>	<u>Price</u>	<u>Value</u>	<u>Total Value</u>
A	from city plant	700,000	3.08	21,560				
	from country station	200,000	2.73	7,460	150,000	1.40	2100	\$31,120
B	from city plant	110,000	3.08	3,388	30,000	1.40	420	3,808
C	from city plant	<u>25,000</u>	3.08	<u>770</u>	<u>9,000</u>	1.40	<u>126</u>	<u>896</u>
Totals		1,035,000		33,178	189,000		2646	
Total value pool (Par. 1, Sec. 2, Article VI)								\$35,824

The total sum due producers, out of this total pool, for bases, pursuant to par. 1 of sec. 1 of Article VII, are as follows:

	at city plant	300,000 lbs. (no premium)	@	\$3.08	\$9,240	
		200,000 lbs. (23 cent ")	@	3.31	6,620	
A	at country station	150,000 lbs. (no premium)	@	2.73	4,095	
		100,000 lbs. (17 cent ")	@	2.90	2,900	\$22,855
B	at city plant	40,000 lbs. (no premium)	@	3.08	1,232	
		60,000 lbs. (35 cent ")	@	3.43	2,058	3,290
C	at city plant	30,000 lbs. (no premium)	@	3.08	924	924
Total						\$27,069

From the total value of the pool	\$35,824
Subtract payments for bases (par. 2, sec. 2, Art. VI)	27,069
	<u>\$ 8,755</u>

Divide the remaining sum by the remainder of the milk (par. 3, sec. 2, Art. VI) $\frac{\$8755}{344,000} = \2.54506

Subtract 2-3 cents (par. 4, sec. 2, Art. VI) $\frac{.02506}{\$2.52000}$

Add amount from previous pools (par. 5, sec. 2, Art. VI) .000

Notify handlers of price per cwt. to be paid for excess milk (Par. 6, sec. 2, Art. VI) $\frac{\$2.52}{\$2.52}$

The payments to be made by each handler pursuant to paragraphs 1, 2, and 3 of section 1 of Article VII, the statements to be rendered by the market administrator and the payments to be made or received by handlers pursuant to paragraph 4 of that section may be exemplified as follows:

Handler A	Total Class Value		\$31,120
	Payment for bases	\$22,855	
	Payment for excess	<u>7,560</u>	
		30,415	
	Pays through Mkt.Adm. +	<u>705</u>	
	Total payment	\$31,120	\$31,120
Handler B	Total Class Value		\$ 3,808
	Payment for bases	\$ 3,290	
	Payment for excess	<u>1,008</u>	
		4,298	
	Receives through Mkt.Adm.--	<u>490</u>	
	Total Payments	\$ 3,808	\$ 3,808
Handler C	Total Class Value		\$ 896
	Payment for bases	\$ 924.00	
	Payment for excess	<u>100.80</u>	
		1,024.80	
	Receives through Mkt.Adm.--	<u>128.80</u>	
	Total payment	\$ 896.00	\$ 896

When all payments are made as above the handlers will have paid uniform class prices for milk purchased, all producers will have received uniform prices with adjustments shown and the market administrator will have in hand for distribution in the next pool \$86.20, arising out of the \$2.506 cents per hundredweight withheld for contingencies.

D. Payments to Producers.

Article VII providing for actual payments to producers is the common focal point of all other provisions of the Marketing Agreement and Order. This Article is the complement of Article IV setting forth the minimum prices, since it specified the exact method by which the minimum class prices are to be paid producers and includes the butter-fat differential which, while a part of the minimum prices, is not pooled but paid direct to each producer by the handler to whom he delivers milk.

Section 1 requires payment at the Class I price for that quantity of milk represented by the base of each producer plus the farm and cattle score premiums to which each producer is entitled by section 5, less 35 cents per hundredweight if the milk is delivered at a country station, and less 35 cents per hundredweight if milk is delivered as cream and at the price computed by the Market Administrator for milk delivered in excess of base, or in the case of a "new" producer for a

period of 60 - 90 days, for all milk delivered. Producers are thus assured of being paid the highest return the market affords for the milk delivered up to a predetermined quantity and a return for any additional milk delivered which will reflect the remainder of Class I utilization in the market, with its minor variations, together with the best salvage value, so to speak, of the milk not used for Class I. The rules for determining bases and the general theory of base rating have already been discussed. The payments here set forth are not much different than the payment plan in use by a large sector of the market as described earlier in this brief. The payment to a "new" producer for a period of 60 - 90 days of the excess price for all milk delivered provides a reasonable period for his induction into the market supply and the responsibilities involved, and constitutes a protection of producers against unscrupulous handlers.

Paragraph 4 of this section provides for the clearing through the Market Administrator of those amounts of money which, when paid or received, as the case may be, by each handler, balance his payments with the total value of his receipts of milk at the minimum class prices. The practical result is the same as if each handler remitted the whole of the class value to the Market Administrator who in turn remitted to each producer in accordance with the requirements of paragraphs 1, 2, and 3 of this section discussed immediately above. The position of the producers association under this article is unique among handlers. The association holds title to the milk of its members at the moment of delivery to the other handlers in the market and the association collects the full value of the milk from these handlers in a lump sum. The association will therefore be responsible to the market pool for all its milk and its share in the market pool will be determined by the provisions of Article VII. Once the share is determined and the clearing payment made to or from the Administrator the Act specifically provides that no order may hinder the association from distributing its money in accordance with the membership agreements. In most markets, however, producers associations have found it desirable to follow fairly closely the plan by which handlers who buy milk direct from producers must make their payments.

Reasons are obvious for providing in section 2 for the correction of errors in payments and the butterfat differential has been discussed in connection with the minimum prices as have the country station differential and the farms and cattle score premiums.

Section 4 of Article VII provides for the payment of a schedule of premiums for farm and cattle scores above 80, as recorded by the District of Columbia Health officer, for the milk within the base of each producer. It has already been shown that such premiums have customarily been applied by the handlers over a period of nearly fifteen years in constantly compensating producers for their efforts in producing higher quality milk. The average quality of milk has improved under these conditions. It appears reasonable to thus differentiate among producers with respect to their individual efforts as measured by the Health Officer in the distribution of the Class I price by paying premiums on bases having the remaining portion of the Class I price to be distributed on milk delivered in excess of base.

Part IX

Other Provisions of the Proposed Marketing Agreement
and Proposed Order for the District of Columbia
Marketing Area

The provisions not previously discussed are necessary for explicit application of the classification and price provisions.

A. Definitions.

The District of Columbia Marketing Area is that territory which lies within the boundaries of the District of Columbia. This territory is wholly governed by Congress through agencies created by Congress. The principal means of livelihood being the work of the United States Government, the population of the District is unusually homogeneous. While the population of the District has overflowed into nearby Virginia and Maryland, the interests of the people are so nearly alike that the whole practically constitutes a continuous community. Application of the proposed marketing agreement and proposed order in the District can reasonably be expected, along with the operations of the Virginia Milk Commission in its territory, to exert such influence in the contiguous towns that no difficulty will arise from confining the marketing area to the boundaries of the District. The scope of the marketing area together with the definitions of "handler" and "producer" determine to whom the order applies.

1. "Person" means any individual, partnership, corporation, association, or any other business unit. In the milk business all types of business organization are to be found. Hence in order that all handlers subject to regulation in a milk market be regulated, it is necessary that all possible types of business organization be specified and the proposed marketing agreement and proposed order be made applicable thereto. If this were not done, some persons would be exempt from the provisions of the proposed marketing agreement and proposed order, even though the character of their business were such that they were subject to regulation. This would operate to cause the regulatory aspects of the proposed marketing agreement and proposed order to be discriminatory between different firms, and it is to obviate this inequitable result that "person" is so defined as to cover all types of business organization.

2. "Producer" means any person, irrespective of whether such person is also a handler, who produces milk in conformity with the health requirements applicable for milk to be sold for consumption as milk in the District of Columbia Marketing Area. Milk which does not meet these requirements cannot legally be sold as milk in the District of Columbia Marketing Area hence the handlers of such milk should not be subject to any proposed marketing agreement and proposed order relating to such milk. But all milk which meets the health requirements is in actual or potential competition with all other such milk, and handlers of such milk must be subject to any proposed marketing agreement and proposed order for such to be effective in regulating the handling of such milk.

3. "Handler" means any person, irrespective of whether such person is a producer or an association of producers, wherever located or operating, who (a) engages in such handling of milk, which is sold as milk or

cream in the marketing area, as is in the current of interstate or foreign commerce, or which directly burdens, obstructs, or affects interstate or foreign commerce in milk and its products.

One of the major objectives of this proposed marketing agreement and proposed order is to place all handlers on a comparable basis with respect to the purchase price they are required to pay for milk sold in the several use classes. In order to do this, all competitive factors in the market must be controlled and directed so that the market operates efficiently and losses engendered by unrestrained, unfair competition are eliminated. In order that this major purpose may be accomplished all persons involved in the handling of milk and its products in interstate commerce, or so as to burden, obstruct, or affect interstate commerce, must be subject to the proposed marketing agreement and proposed order. All types of business setups and organizations, both physical and legal, are found. Hence, the definition of a handler must be broad enough to include all those persons who are in competition with each other so that no provision of the proposed marketing agreement and proposed order be discriminating in effect with respect to different firms or persons.

B. Market Administrator and provisions relating thereto.

1. Selection, removal and bond. In order that the Secretary can be assured that the administration of the proposed marketing agreement and proposed order is being carried out without any bias in favor of or against any group in the District of Columbia Marketing Area, it is necessary that he appoint the Market Administrator. This procedure has been followed in all Federal milk licenses, due to the fact that it has proven more feasible than other types of administrative organization. The person selected needs to be one of wide experience and one with complete understanding of the proposed marketing agreement and proposed order. In order further to insure unbiased administration of the proposed marketing agreement and proposed order, it is necessary that the market administrator, selected by the Secretary, be subject to removal by the Secretary and only by the Secretary. For further assurance to all concerned of the faithful and honest performance by the Market Administrator of his duties, the market administrator is required to execute and deliver to the Secretary a bond in such amount as the Secretary may determine, with surety thereon satisfactory to the Secretary.

2. Compensation. The Secretary, who selects the Market Administrator, should also be the one to determine a reasonable compensation for the market administrator he selects. The market administrator being necessary for the proper administration of the proposed marketing agreement and proposed order, his salary is considered an expense of administration.

3. Duties. In order that there shall be proper administration of the proposed marketing agreement and proposed order, the market administrator must:

a. Keep such books and records as will clearly reflect the financial transactions provided for in the proposed marketing agreement and proposed order.

In order for the Secretary to be assured, and to assure producers and handlers of proper administration of the proposed marketing

agreement and proposed order, the books and records of the market administrator must be subject to his examination at any and all times. Only by being so assured can the Secretary know definitely that the proposed marketing agreement and proposed order are effectuating the policy of Congress as stated in the Agricultural Adjustment Act.

b. In order for the Secretary to be informed, furnish such information and verified reports as the Secretary may request.

c. In order to assure that his duties, for which the Secretary is responsible, are being properly carried out by his employees, obtain a bond for each employee who handles funds entrusted to the market administrator under the provisions of the proposed marketing agreement and proposed order. Most of the money handled in the Administrator's office belongs to handlers or producers, and the bond would cover possible losses to them. This insurance being necessary to the proper administration of the proposed marketing agreement and proposed order, the expense of such bond should be a part of the expense of administration.

d. Publicly disclose, except as otherwise directed by the Secretary, the name of any person who has not:

(1) Made reports pursuant to article V of the proposed marketing agreement and proposed order. These reports are necessary in order that payments to producers may be verified by the market administrator and the purpose of the proposed marketing agreement and proposed order be effectuated. If the handler pays his producers without filing these reports, other handlers and also the producers should be informed that the handler had not filed reports and that the administrator could not determine if the handler had paid the correct price for his milk. If the producers are not so informed, they might assume that they had been paid the correct price. The administrator must make it known that he had not verified the prices paid and, therefore, was not responsible for its correctness.

(2) Made payments pursuant to article VII of the proposed marketing agreement and proposed order. The market administrator obtains information to compute the price that shall be paid by each handler and also obtains information as to what price was paid. With no notice to the contrary, a producer might assume that the price he received was the one to which he was entitled, when, in fact, it might be different from what the market administrator had computed as being correct. Because the producer might make such an incorrect assumption, the market administrator must notify such producers that the prices paid by the handler were not those computed by the market administrator. All handlers will be in the same competitive position only if they pay the price as computed by the administrator. The other handlers in the market in order to be on equal competitive terms should know the names of those competitors who have not made the payments prescribed in article VII.

C. Reports of handlers

Article V of the proposed marketing agreement and proposed order sets forth three types of reports which handlers are required to submit and provides for the verification of these reports. The necessity for all these reports and for their verification becomes apparent with the realization of the

nature of a milk market and practical operating problems which arise in making effective the class price in the payments to all producers of uniform prices which reflect the utilization of milk by all handlers.

Section 1 requires handlers to submit reports on or before the fifth day after the end of each delivery period, showing, in such detail and form as the market administrator discovers best fits the particular conditions, the information as to all milk or cream received by handlers and the utilization of such milk.

Section 2 provides for other reports with respect to producers delivering milk to a handler. These reports enable the market administrator to secure needed information with respect to producers after a handler has newly become a party to the agreement or subject to the order, or to request information not already in his hands, which is needed for full knowledge in order to effectuate and to determine the effects of the order in relation to the policy of the Act. The second report provided for under section 2 requires that each handler report to the market administrator upon first receiving milk from any producer who has not previously shipped milk to that handler, in order that the market administrator may keep his records up to date with respect to the producers delivering to each handler.

Section 3 provides for the regular reporting by handlers of their payments to producers for each delivery period in the form of a copy of the handler's producer payroll. Such a report expedites the routine checking of compliance with the marketing agreement and order and provides in an economical way the information necessary for the market administrator to maintain adequate producer records.

Section 4 provides that each handler shall permit the market administrator to verify the information contained in all reports; the importance of routine verification of all reports is readily understandable in view of the intricate and detailed transactions which are inherent in the milk business. Where errors both wilful and accidental may so readily creep in and affect the returns to producers, successful operation of a marketing agreement and order will depend to a large extent upon the extent to which the market administrator assures himself of the correctness of the figures supplied him in the reports and of the correctness of the sampling, weighing and testing for butterfat of the milk which is delivered by producers. Such routine verification is thus extremely necessary for the effectuation of the provisions of the marketing agreement and order.

D. Expense of administration.

The market administrator must incur many expenses in the administration of a marketing agreement and order. He must obtain personnel sufficient to compute periodically the sales of milk to each handler, the price each handler shall pay for base and excess milk delivered to him, and record and audit the reports of each handler, and for many detailed activities involved in his duties.

The Agricultural Adjustment Act, as amended, provides that the expense of administration shall be prorated over all handlers subject to the order. The proposed marketing agreement and proposed order provides for the payment by handlers each delivery period of a sum not exceeding two cents per hundredweight with respect to all milk used as Class I by them during such delivery period.

This expense of administration appears to be adequate to cover the necessary expenses of the administration of the marketing agreement and order. The average expenses of administration in several other markets over a period of time have been as follows:

Boston	1.4 cents
Kansas City	1.1 cents
San Diego	1.5 cents
Wichita	1.8 cents
Topeka	1.8 cents
Fall River	2.1 cents

This provision of the proposed marketing agreement and proposed order provides a maximum of \$0.02 per hundredweight and, if the funds so collected appear to be too high, the payments by handlers may be waived or lowered as to any delivery period. The handlers are then assured that the amounts assessed from them shall be adjusted to the requirements of the market. The bond required of the Market Administrator and periodic audits of his records give every reasonable assurance that the monies are properly handled.

A P P E N D I X A

THE PRICE STRUCTURE FOR MILK

Technical Paper No. 1, Dairy Section,
Agricultural Adjustment Administration,
United States Department of Agriculture.

THE PRICE STRUCTURE FOR MILK

by

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Introduction

One of the most important and perplexing problems encountered in milk marketing is that pertaining to the classification of milk. This problem is merely one of many, although fundamental and probably the most important, that may and perhaps must be approached through a study of the price structure for milk.

This paper was written for use in connection with marketing agreements and orders for milk. However, numerous questions have arisen pertaining to the classification of milk, the price structure, and related problems, and it is for these reasons that this paper is made available at this time.

This analysis of the price structure has been developed under assumptions of competitive conditions. Numerous details have been omitted in the interest of brevity and in order that the discussion be suitable for general use. The analysis will be expanded as rapidly as possible, and the later phases of the work are to deal primarily with the price structure when the assumptions upon which this paper is based are varied.

The authors have received aid from several persons in the development of this paper. Dr. Warren C. Waite helped draft the paper in all but the latest stages of its development, and Dr. Harold B. Rowe contributed many valuable suggestions relative to the technique of the analysis. Others have made fruitful suggestions and have aided materially in editing the paper.

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Part I

THE PRICE STRUCTURE FOR MILK FOR THE COUNTRY AS A WHOLE

A complete analysis of the price structure for milk for the country as a whole would fill a rather sizable volume. However, for the purposes of this paper, it is unnecessary to devote a great deal of time and space to the development of such an analysis. All that is intended in Part I is to develop a rather general treatment of the price structure for milk for the country as a whole, in order that the analysis of the price structure for milk within a milk shed may be approached more satisfactorily.

An explanation of the price structure for dairy products for the country as a whole involves consideration of (1) the conditions affecting the demand for milk, and (2) the supply characteristics of milk with respect to the localization of particular phases of the industry and the interchangeability of milk between different dairy products. Likewise, an explanation of the price structure for milk within a particular area or a particular milk shed involves consideration of (1) the nature of the demand for the different products derived from milk, and (2) the conditions affecting the supply of milk.

A. The nature of the demand for milk. It is well recognized that the demand for any commodity is a composite of the demands of the different groups of people who are ready to purchase different quantities of it at different prices. Similarly, the demand for a product such as milk, which is used in the production of a number of different products, is

1/ In 1932 the total volume of milk used in the manufacture of dairy products and used by the non-farm population as fluid milk and cream was distributed among the various uses as follows:

Product	Percent of total volume used
Butter - creamery and whey	45.6 <u>a/</u>
Other manufactured products	13.2 <u>a/</u>
Milk used by non-farm population as fluid milk and cream	41.2 <u>b/</u>
Total	<u>100.0</u>

a/ Compiled from estimates of the production of manufactured dairy products, Bureau of Agricultural Economics, U. S. Department of Agriculture.

b/ Compiled from Estimates of Consumption of Milk and Cream in Cities and Villages, Bureau of Agricultural Economics, U. S. Department of Agriculture.

the aggregate or composite demand for milk in all uses. Thus, although the different forms or products in which milk is used are competitive in the sense that each use competes with all other uses for a portion of the total supply of milk, and the derived demands are rival or competitive, in the aggregate they comprise the total demand for milk. The nature of the demand for fluid milk is discussed at length in Part III of this paper.

B. The supply characteristics of milk.

1. Localization of the industry. Although milk production is an important agricultural enterprise in practically every State in the United States, it nevertheless varies markedly between areas as to relative importance and is highly concentrated in certain areas. An important factor in this connection is the fact that the transportation system has developed so that certain areas possess a comparative advantage in the production of milk for use in the production of dairy products that are readily storable and transportable, and others have a comparative advantage in the production of milk for fluid consumption. Thus, the States of Iowa, Minnesota, Nebraska and Wisconsin produced 44.8 percent of the total volume of creamery butter produced in the United States in 1932 and 1933. Wisconsin and New York produced 64.8 percent and 62.1 percent of the total volume of cheese produced in the United States in 1932 and 1933, respectively. Of the total United States production of evaporated milk in 1933, Wisconsin and California produced 53.3 percent, and the five States of Wisconsin, New York, California, Illinois and Ohio produced 70.0 percent. ^{2/} In those areas wherein large urban centers are situated, notably the New England and Middle Atlantic areas, as well as in the territory immediately surrounding other urban centers, the larger part of the total volume of milk produced is utilized in the form of fluid milk and cream.

2. The interchangeability of the supply of milk between uses. The milk supply of the country is interchangeable between uses, especially so in the case of manufacturing uses. In general, there is little difference between the quality requirements for milk used in the production of evaporated milk, butter, cheese and other manufactured dairy products. In addition to the fact that milk is markedly interchangeable between the uses noted above as far as quality requirements are concerned, processing facilities for the different products are so intermingled geographically, and, in fact, are in many cases available in one plant, that the matter of the location of the producer with respect to processing facilities for the different products is usually not important in

^{2/} Manufactured Dairy Products, Bureau of Agricultural Economics, United States Department of Agriculture.

preventing producers from shifting their milk from one channel of disposal to another. Thus, should relative price conditions warrant, the producer can in most cases shift his milk from one use to another. In the case of those plants manufacturing two or more products, the producer does not have to shift his milk from one plant to another, the shift or change in the relative volume of milk entering the different uses being accomplished by the plant management, and for the same reason that would lead the farmer to shift his milk from one use to another.

The interchangeability of the supply of milk between milk produced for use as fluid milk and that produced for use in the production of various manufactured dairy products is not so marked as is the interchangeability of milk between the different manufactured products. This is due in large part to the fact that in most milk markets milk used as fluid milk must be produced in accordance with more stringent sanitary requirements than is the case with milk produced for use in manufactured dairy products. However, this factor operates, principally, to lengthen the period of time necessary for a producer to shift his disposal of milk from manufactured dairy products uses to fluid use. The producer, in order to shift from the production of manufacturing milk to the production of fluid milk, must equip his barn and follow the procedure with respect to sanitation that is specified in the health ordinances of the city or town in which he wishes to sell fluid milk. This involves additional expense in producing milk, but, if the farm price of fluid milk is sufficiently above the farm price of manufacturing milk, the producer will equip his barn and conform to sanitation regulations in order that he may sell fluid milk. Thus, although the degree of interchangeability of milk between fluid use and manufactured product uses is less marked than the degree of interchangeability of milk between the different manufactured product uses, producers can and do shift from the production of manufacturing milk to the production of fluid milk when price relationships warrant. Similarly, when the price of fluid milk declines to a point where it is not sufficiently high to cover the additional costs of producing milk for fluid consumption, producers discontinue the production of milk for consumption as fluid milk and produce milk for use in the production of manufactured dairy products.

C. Factors affecting the general level of the prices of dairy products.

1. Demand factors. Numerous factors influence the demand for dairy products, such as the volume of the money income of consumers, consuming habits, etc. Perhaps the most important of the factors affecting the demand for dairy products is the volume of money consumers have available for the purchase of goods. Thus, the prices of dairy products vary directly with the income of consumers (assuming constant supplies). The relationship between the index of the farm prices of dairy products and

the index of factory payrolls (taken as a measure of changes in the income of consumers) is shown in Figure 1. As was stated above, numerous factors affect the demand for milk. However, for the purposes of this paper, it is unnecessary to discuss them in detail.

2. Factors affecting the supply of milk. The changes in the volume of milk that will be forthcoming from a given number of cows due to changes in weather, pasture and crop conditions need no comprehensive treatment here, since it is obvious that sudden and wide variations in the weather, droughts and other unusual weather conditions that operate to reduce or increase the quantity and quality of feed relative to the number of livestock, all tend to cause variations in the supply of milk.

Aside from the factors noted above, changes in the prices of dairy products relative to the prices paid by milk producers for the articles used in milk production, as well as changes in the prices of dairy products relative to the prices of other farm products, affect the volume of milk produced. In the Middle West, for example, changes in the prices of competing farm products have an important effect on milk production. An increase in the price of beef, or a relative decline in the prices of dairy products, is sufficient to cause large numbers of farmers in this section, particularly in the area west of the Mississippi, to turn to raising beef steers and heifers and let the calves suckle the cows longer than was the practice before the change in relative prices. In addition, in numerous cases where more than one livestock enterprise is followed on the farm, a relatively larger volume of the feed available is fed to livestock other than milk cows when prices of alternative livestock products become favorable relative to the prices of dairy products.

D. Relationships between the prices of dairy products in different markets.

Since most manufactured dairy products are readily transportable, the price of a product such as butter tends to vary between markets by not more than the amount necessary to cover the cost of shipping the product (freight and handling costs) from one market to another. Thus, in Chicago, Illinois, situated in the large surplus butter-producing area comprising the East North Central and West North Central States, the price of butter is generally lower than in New York City by an amount sufficient to cover freight and handling charges from Chicago to New York City (New York City being located in a deficit butter-producing area). The decidedly close relationships between the prices of butter in different markets are shown in Figure 2.

The prices of cheese in different markets vary together (see Figure 3), partly for the same reasons as those advanced above with respect to butter and also because of the possibility of shifting from cheese production to the production of butter, which is more widely

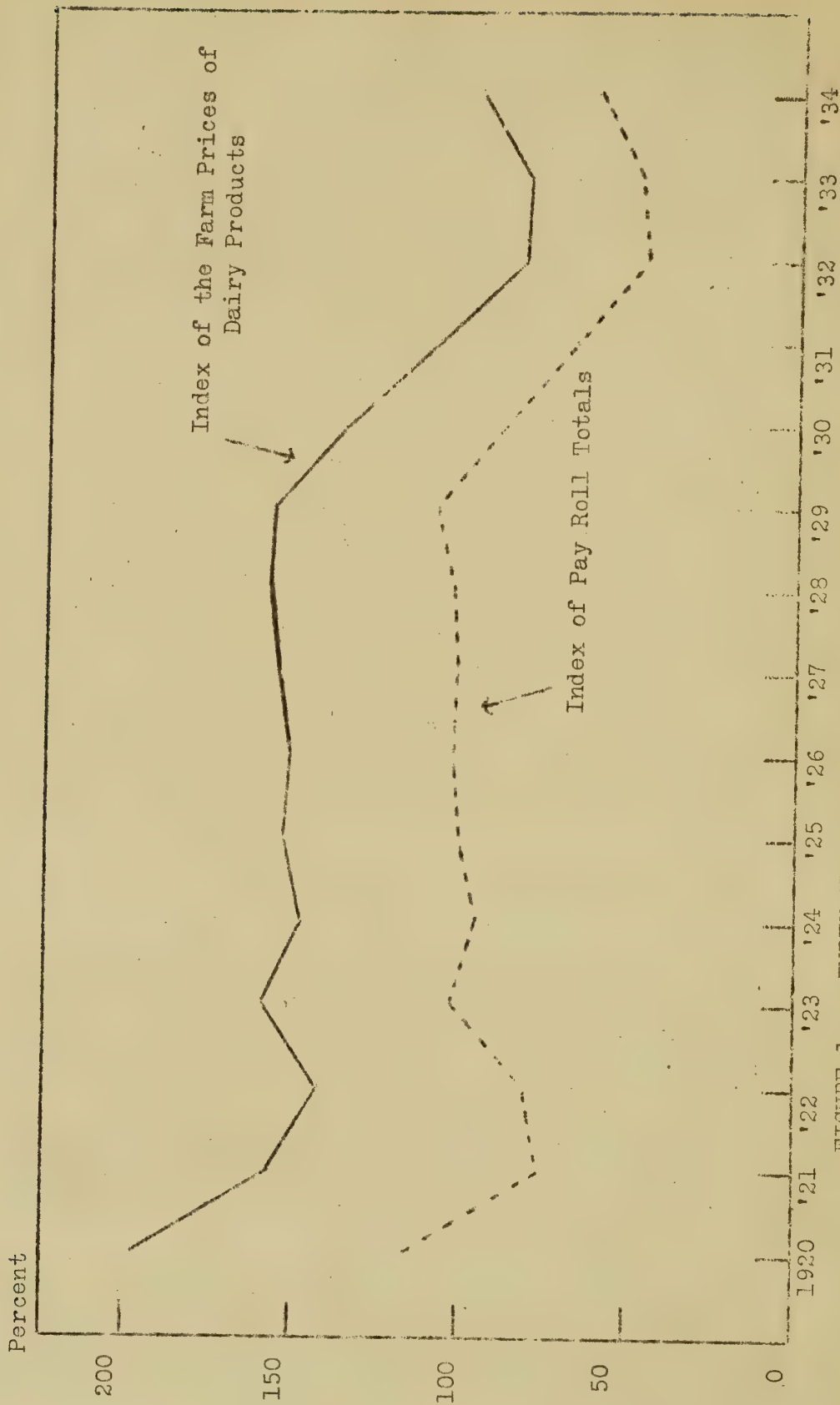


FIGURE 1. - INDEX NUMBERS OF U.S. FARM PRICE OF DAIRY PRODUCTS
(AUGUST 1909 - JULY 1914 = 100)

AND INDEX NUMBERS OF PAY ROLL TOTALS IN MANUFACTURING
INDUSTRIES (1923-1925 = 100)

1920-1934

transported. The same relationships exist with respect to evaporated milk.

In view of the foregoing, it should be evident that the market for the most important manufactured dairy products is national in character and that the price of milk or butterfat used in the different products noted above in any particular area is closely associated with the price of milk so used in any other area.

E. Relationships between the price of milk used in different products.

As was pointed out in B above, the supply of milk is markedly interchangeable between uses in the case of milk produced for manufacturing purposes and to a lesser extent between fluid milk and manufacturing milk uses. This factor operates to establish close relationships between the price of milk in different uses, in the country as a whole, as well as within areas. (See Figure 4.) Thus, although the price of milk produced for use as fluid milk is generally higher in any particular area than the price of milk produced for use in manufactured dairy products (for the reasons advanced in section B and section C), and therefore the market for fluid milk in any particular area may be considered as a local market, the price of milk produced for use as fluid milk varies with the price of such milk in any other area and also varies with the price of milk produced for use in manufactured dairy products, both for the country as a whole and in the different sections of the country.

Table 1. Wholesale prices of butter and cheese, index numbers of milk prices and index numbers of payroll totals, 1920-1934.

Year	Wholesale prices of American cheese	Index numbers of farm prices of all milk sold wholesale (Aug. 1909-July 1914: = 100)	Index numbers of prices paid to producers for 3.5% milk at condenseries (1910-1914: = 100)	Index numbers of prices paid by milk dealers for 3.5% milk used for city distribution (1910-1914: = 100)	Index numbers of payroll totals (1923-1925 = 100)
	Cents	Cents	Cents	Percent	Percent
1920	61.4	58.65	24.9	191	197
1921	43.3	41.68	18.3	158	149
1922	40.6	39.21	19.3	141	129
1923	46.9	46.03	23.86	155	150
1924	42.6	41.19	19.93	139	147
1925	45.3	44.07	22.99	142	149
1926	44.4	42.79	21.96	139	153
1927	47.3	45.78	24.6	141	152
1928	47.4	46.00	25.38	142	154
1929	45.0	43.75	23.63	142	157
1930	36.5	35.23	18.3	128	149
1931	28.3	27.05	15.41	98	123
1932	21.0	20.07	12.76	73	96
1933	21.66	20.79	13.08	72	89
1934	25.7	24.77	14.19	85	105

Compiled from records of the United States Department of Agriculture and the United States Bureau of Labor Statistics.

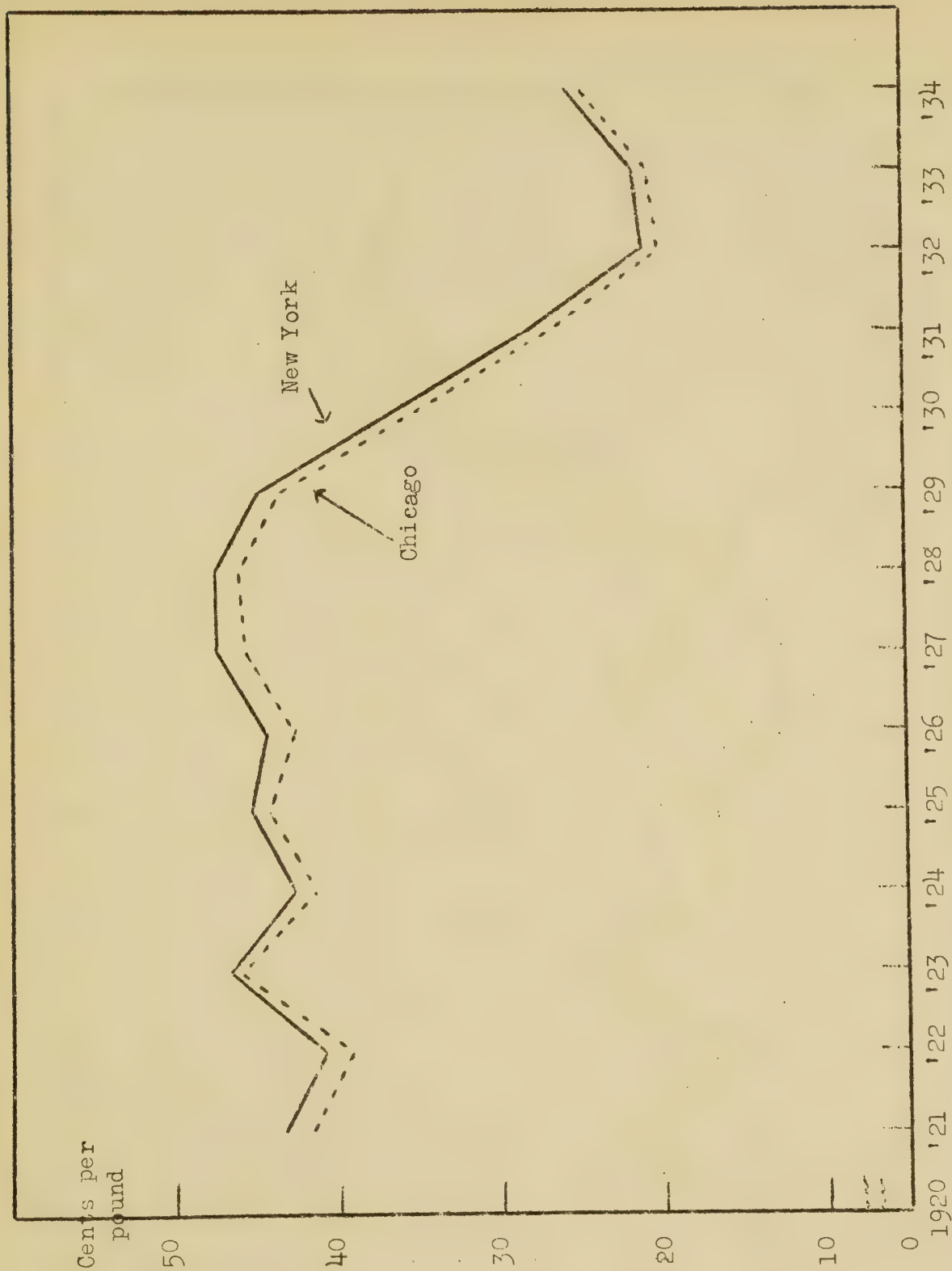


FIGURE 2. - WHOLESALE PRICE OF 92-SCORE CREAMERY BUTTER AT
NEW YORK CITY AND CHICAGO, 1921-1934.

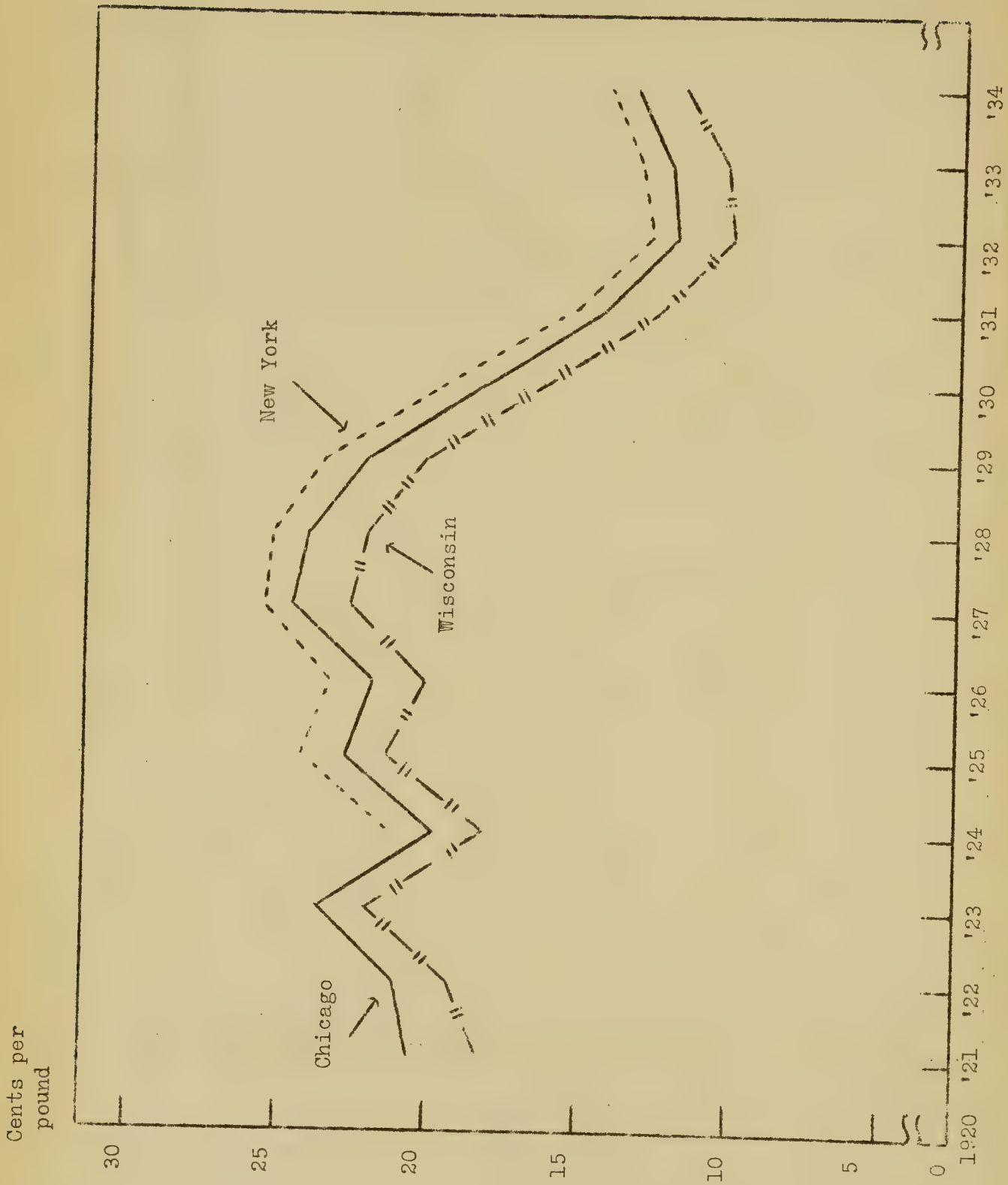


FIGURE 3. - WHOLESALE PRICES OF AMERICAN CHEESE - NEW YORK SINGLE DAISIES, CHICAGO SINGLE DAISIES, AND WISCONSIN T'TINS (ON THE WISCONSIN CHEESE EXCHANGE), 1921-1934.

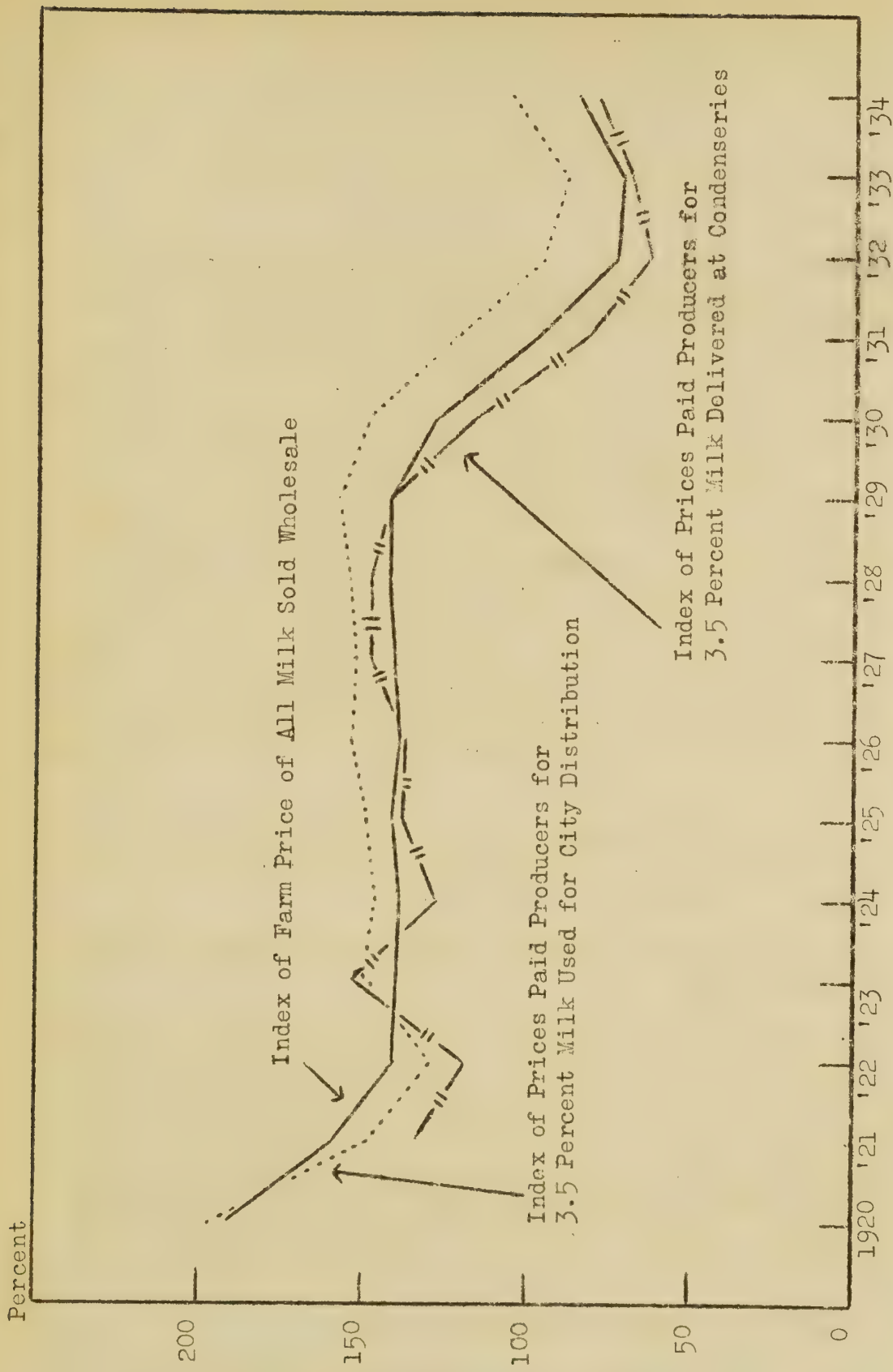


FIGURE 4. - INDEX NUMBERS OF FARM PRICES FOR ALL MILK SOLD WHOLESALE, INDEX NUMBERS OF PRICES PAID TO PRODUCERS FOR 3.5 PERCENT MILK DELIVERED AT CONDENSERIES, AND INDEX NUMBERS OF PRICES PAID BY MILK DEALERS FOR MILK TESTING 3.5 PERCENT BUTTERFAT, USED FOR CITY DISTRIBUTION AS MILK AND CREAM, UNITED STATES, 1920-1934. (1910-1914 = 100)

Part II

THE PRICE STRUCTURE FOR MILK WITHIN A MILK SHED

The terms under which milk is sold vary widely between markets. In some markets, usually small markets located within a surplus area or with few or no sanitation requirements, producers receive the same price f.o.b. the market for all milk, regardless of whether it is used for fluid milk, cream or manufactured dairy products. In other markets, while producers receive the same price for all milk sold, this price is a weighted average price which is computed by adding together the value of milk sold to distributors in accordance with a schedule of the prices for milk used for various products, and dividing the total sum so computed by the total volume of sales to distributors. In still other markets, producers receive two or more different prices for different portions of the milk which they deliver, a weighted average price for that portion of their milk sold as fluid milk and cream, and a lower price on the remainder, which is used in the production of manufactured dairy products. Again, producers may receive one price for that portion of their milk sold as fluid milk, another price for that portion sold as fluid cream, and still another price for that portion which is used in the production of manufactured dairy products such as butter, evaporated milk and cheese.

In this section, the relationships between the prices of milk used for different purposes f.o.b. city, and the farm price structure arising therefrom, are examined in some detail.

A. The price structure; uniform quality requirements - centralized processing.

For purposes of presentation, the price structure is examined in a hypothetical market, wherein factors operating to establish a differentiation in the prices of milk used in the production of different dairy products are assumed to be non-existent. One by one the factors operating to establish such differentiation in the prices of milk used in the production of different dairy products are considered, and thus the analysis of the price structure progresses from that of the highly simplified hypothetical market toward that of the most complex type of market. For purposes of analysis, therefore, it is assumed that:

1. There is a freely competitive market.
2. Local delivery costs and labor are the same for all classes of product.

3. There is no variation in the volume of milk consumed in different forms.
4. All milk, whether sold to consumers as fluid milk or other dairy products, is of uniform quality.
5. All milk is brought to the city in fluid form, there to be processed into the various dairy products.
6. There is no variation in the volume of milk sold per farm from day to day.

Under the conditions noted above, it is obvious that producers would receive the same per unit price for all milk brought to the market since each unit of the supply is interchangeable with every other unit. This would be true regardless of whether the milk were sold to the consumer as fluid milk, fluid cream, or manufactured dairy products.

However, it is well recognized that the butter and other manufactured dairy products equivalent of a unit of milk can be transported long distances at very low cost per product equivalent of a unit of milk as compared to the cost of transporting a unit of milk the same distance, and can be kept in storage for a relatively long period of time without appreciable deterioration in quality. Manufactured dairy products are composed largely of milk solids, or, stated differently, they are composed of one or more of the constituents of milk concentrated to a very much greater degree than in whole milk. Thus it is more economical to produce the finished product, such as butter, cheese, etc., at a distance from the market and transport the finished product to the market, rather than to transport whole milk to the market and there process it into the finished product (unless, of course, the demand for all the products of milk in the market can be satisfied from the volume of milk produced in the area immediately surrounding the market). For example, one hundred pounds of butter contain approximately 80 pounds of butterfat, and one hundred pounds of 3.5 percent milk contain 3.5 pounds of butterfat. Assuming that transportation costs per one hundred pounds of product are equal, the cost of transporting butterfat in the form of butter and in the form of 35 percent cream would be about $1/23$ and $1/10$, respectively, of the cost of transporting butterfat in the form of milk. The reasons given above suffice to explain why manufactured dairy products are produced, in many cases hundreds of miles from the market, and shipped to the market in finished product form rather than being shipped to the market in the form of fluid milk and there processed into the finished product.

B. The price structure; uniform quality requirements - decentralized processing.

For the purpose of considering the manner in which the transportation factor affects the price structure for milk within a milk shed, the preceding assumption that all milk is brought to market, there to be processed into the several milk products, is now dropped and, instead, in addition to the remaining assumptions noted previously, it is assumed that:

1. All the milk which is produced within 100 miles from the market is needed to satisfy the demand for fluid milk.
2. All the milk which is produced in the area between 100 and 150 miles from the market is needed to meet the demand for fluid cream.
3. All the milk which is produced within the area between 150 and 200 miles from the market is needed to meet the demand for evaporated milk.
4. All the milk which is produced within the area between 200 to 400 miles from the market is required to meet the demand for butter.
5. Transportation costs vary in direct proportion to distances at the following rates per unit per mile:
 - (a) Whole milk - 1 cent per hundredweight.
 - (b) The cream equivalent of 100 pounds of 3.5 percent milk - 0.2 cent.
 - (c) The evaporated milk equivalent of 100 pounds of 3.5 percent milk - 0.1 cent.
 - (d) The butter equivalent of 100 pounds of 3.5 percent milk - .05 cent.
6. The farm value of skim milk exactly equals the cost of separating cream from milk.
7. The f.o.b. city value of the butter equivalent of 3.5 percent milk (it is assumed that the over-run is necessary to cover the manufacturer's margin) is \$1.00.

Under the above assumptions the f.o.b. city prices that must be paid for milk in order to secure the volume necessary to meet the demand for milk, as well as the f.o.b. city prices that must be paid for the cream equivalent and evaporated milk equivalent of 100 pounds of milk to

meet the respective demands, can be readily computed. Thus, with the f.o.b. market price of the butter equivalent of 100 pounds of 3.5 percent milk at \$1.00, the farm price of 100 pounds of milk which is converted to butter at a point 400 miles from the market is \$1.00 less the cost of transporting the butter equivalent of 100 pounds of such milk to the market, or 80 cents ($\$1.00 - (400 \times \$0.0005) = \$0.80$). At a point 200 miles from market the farm price of milk used for butter is 90 cents ($\$1.00 - \0.10 transportation costs = \$.90). If milk is to be used in the production of evaporated milk at a point 200 miles from the market, the farm price of such milk must be 90 cents per hundredweight or else farmers will sell their milk to butter manufacturers rather than manufacturers of evaporated milk. The f.o.b. city price of the evaporated milk equivalent of 100 pounds of 3.5 percent milk will be the farm price of 100 pounds of 3.5 percent milk at a point 200 miles from the market, plus the cost of transporting the evaporated milk equivalent of such milk to the market, or \$1.10 ($\$.90 + \$.20 = \1.10). Similarly, the farm price of milk used to produce cream at a point 150 miles from the city must be equal to the farm price of milk used to produce evaporated milk at that point, else farmers will sell their milk for use in evaporated milk rather than cream, and the f.o.b. city price of the cream equivalent of 3.5 percent milk will be the farm price of such milk at a point 150 miles from the market plus the cost of transporting the cream equivalent of 100 pounds of 3.5 percent milk from that point to the city, or \$1.25 ($\$.95$ farm price at 150 mile-point + \$.30 transportation costs to market = \$1.25). Similarly, the f.o.b. city price of 3.5 percent milk will be the farm price of milk used for cream at a point 100 miles from the market plus the cost of transporting fluid milk to the market, or \$2.05 ($\1.05 farm price at 100 mile-point + \$1.00 transportation costs to market = \$2.05).

Therefore, under the conditions assumed the prices for milk and milk products f.o.b. city would be as follows:

1. Fluid milk - \$2.05 per hundredweight.
2. The cream equivalent of 100 pounds of 3.5 percent milk - \$1.25.
3. The evaporated milk equivalent of 100 pounds of 3.5 percent milk - \$1.10.
4. The butter equivalent of 100 pounds of 3.5 percent milk - \$1.00 (assumed, but of course a different price f.o.b. the market for the butter equivalent of 100 pounds of 3.5 percent milk would be associated with different prices for the other milk products than those computed above).

Under the conditions assumed it is also obvious that milk would not be shipped to the city to be processed into the several dairy products

(except in case of error or lack of knowledge with respect to the most profitable channel of disposal, which is not possible under the assumptions set forth). Prices in the city would be quoted for milk, cream; evaporated milk and butter. All milk brought to the city would command one price, cream another, etc. Thus, there would be no differentiation in milk prices f.o.b. city.

The farm price for milk at any given point within any particular zone is, of course, equal to the farm price of milk at the outer edge of the zone plus the difference between the cost of shipping milk in the particular form to the market from the outer limit of the zone and the cost of shipping such milk from any given point within the zone. The farm price structure for milk that would obtain under the conditions set forth above is shown in Figure 5.

C. The price structure; varying quality requirements - decentralized processing.

If the assumption that all milk is of uniform quality is discarded, and it is assumed that the quality requirements for milk used in the form of fluid milk and cream are higher than those for milk used in the production of evaporated milk and butter, then the type of market under analysis is somewhat more comparable to the rather complex type of milk market now obtaining in many large urban areas.

Sanitation requirements vary somewhat between milk markets. Usually, the requirements cover such items of sanitation as periodic veterinary examination of cows, cleanliness of cows, cleanliness of dairy barns in addition to specifications with respect to the type of flooring, light, etc., specifications with respect to the type and care of the milk house, cleaning and care of utensils, and rules and regulations pertaining to milking and handling of the milk.

It should be obvious that the sanitation requirements under which milk for fluid milk and cream is produced, which in by far the larger number of cases are more stringent than the sanitation requirements under which milk for manufacturing purposes is produced, operate to increase the cost of producing milk for use as fluid milk and cream relative to the cost of producing milk for manufacturing purposes. Thus, over a period of time, the supply price ^{3/} of a given volume of milk used for fluid milk and cream will be somewhat higher than the supply price of the same volume of milk used for manufacturing purposes, other factors remaining constant. Of course, the difference between the supply prices of milk produced for use in different products in any milk supply area, other factors being the same, will depend upon the differences in the sanitation requirements applicable to milk produced for use in the different products. If it were assumed that sanitation requirements raise

^{3/} The price that must be paid in order that a given volume of milk of the desired quality be forthcoming.

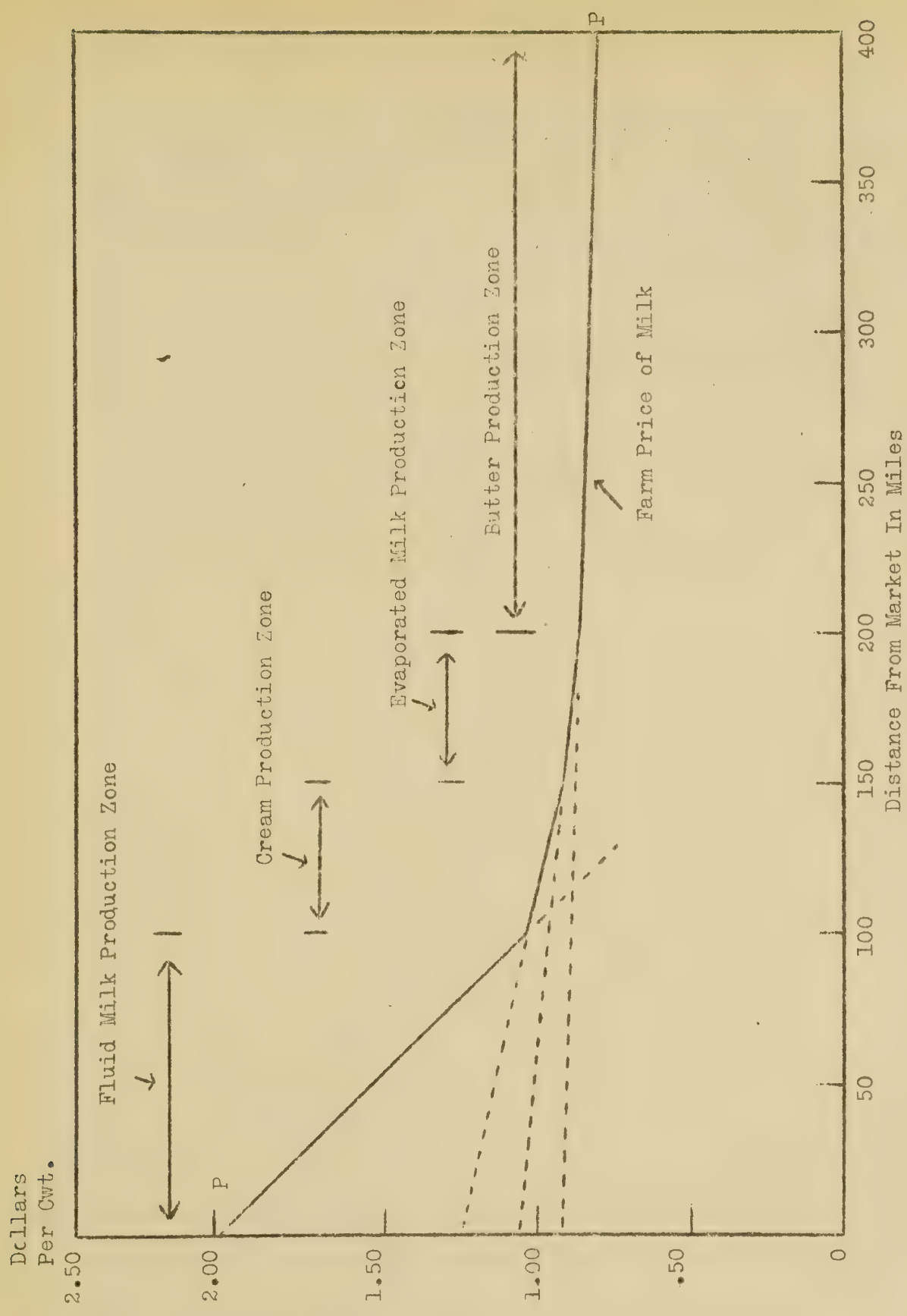


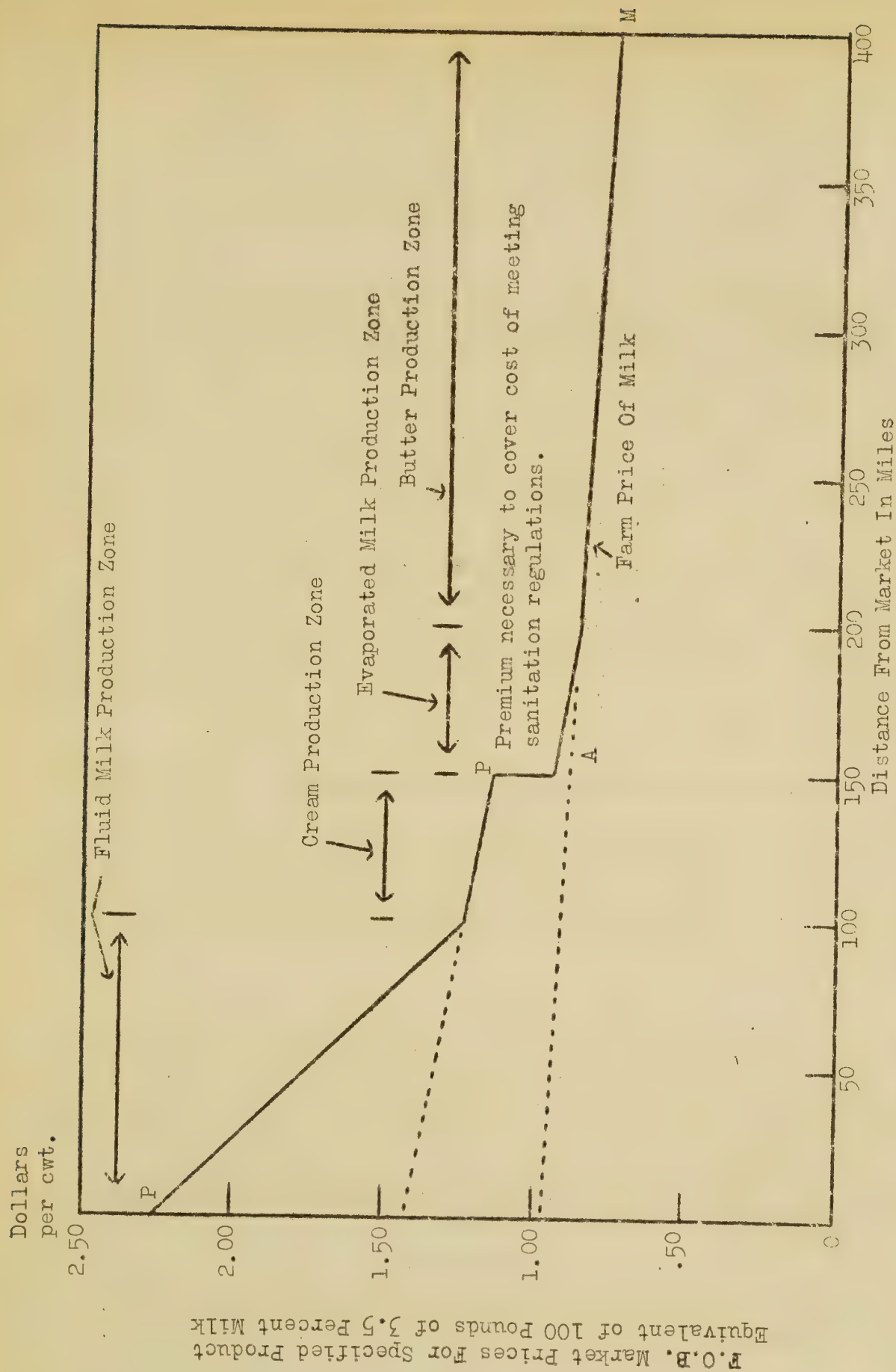
FIGURE 5. - PRODUCTION ZONES AND FARM PRICE STRUCTURE, FOR SPECIFIED DAIRY PRODUCTS AS DETERMINED BY THE TRANSPORTATION RATE STRUCTURE

F.O.B. Market Prices For Specified Product
Equivalent of 100 pounds of 3.5 Percent Milk

the supply price of milk for use as fluid milk and cream 20 cents per hundredweight per farm above the supply price per hundredweight for milk used for manufacturing purposes, the price structure under the assumed conditions would be similar to that set forth in Figure 6 (a position of stable equilibrium is assumed, so that the f.o.b. city prices that prevail, and the farm price structure arising therefrom, are normal supply prices).

Under the conditions assumed, the prices for milk and milk products f.o.b. city would be as follows:

1. Fluid milk - \$2.25 per hundredweight.
2. The cream equivalent of 100 pounds of 3.5 percent milk - \$1.45.
3. The evaporated milk equivalent of 100 pounds of 3.5 percent milk - \$1.10.



F.O.B. Market Prices For Specified Product
Equivalent of 100 Pounds of 3.5 Percent Milk

FIGURE 6. - PRODUCTION ZONES AND FARM PRICE STRUCTURE FOR SPECIFIED DAIRY PRODUCTS AS DETERMINED BY THE TRANSPORTATION RATE STRUCTURE AND SANITATION REGULATIONS FOR FLUID MILK AND CREAM.

4. The butter equivalent of 100 pounds of 3.5 percent milk - \$1.00.

In Figure 6, the line PP represents the farm price of milk used for fluid milk and cream; the line AM the farm price for milk used in the production of evaporated milk and butter. It should be noted that as yet no factor has been introduced that will operate to establish different prices for milk f.o.b. the city. Under the assumed conditions, all milk produced within a particular zone will be used in the production of the same product. Thus, no milk will be shipped to the market as milk from the cream zone, etc. Stated differently, there will be no differentiation between the price of milk based on the form in which such milk is sold f.o.b. city. Also, no factor has been introduced that will operate so that individual producers will receive different prices for different portions of their milk. Producers within each zone will sell all of their milk at one price. Farm prices in a particular zone will vary as transportation costs from different points in the zone to the city vary, and will vary between zones because of differences in transportation costs of milk and the product equivalent of milk, and because of differences in cost of producing milk engendered by differences in the sanitation regulations applicable to milk and milk products.

D. The price structure as affected by type of transportation.^{4/}

It should be emphasized that the foregoing treatment of the effects of the transportation rate structure and sanitation requirements on the price structure for milk has been greatly simplified for purposes of presentation. Variations in the transportation rate structure and sanitation regulations from those assumed bring additional complexities into the price structure.

One of the assumptions on which this analysis has been based so far is that transportation rates vary according to distance and weight only. However, several factors influence transportation costs, the more important of which are type of transportation (truck, tank car and railroad), complementary services, topography of country, volume, labor conditions, gasoline and truck costs, and local transportation arrangements. Some attention will be given to the effect of these various factors on the price structure and size of sheds for the different types of dairy products.

^{4/} This section is based largely upon a report prepared by Dr. J. M. Tinley, formerly Principal Agricultural Economist, Dairy Section.

1. Type of Transportation. From points relatively close to a market, producers frequently find it advantageous (or less costly) to transport their own milk to the city. Many producers use small trucks to transport feed, implements, etc., from the city to their farms or from one part of the farm to another and find it convenient to take their milk direct to a city plant. The farmer or a member of his family operates the truck and because of proximity to the city can reduce operating costs per cwt.-mile to a very low figure. However, as distance from the city increases, operation of a small truck per hundredweight milk increases rapidly. A large load becomes more economical so larger trucks are used. Few farmers have sufficient milk to supply a load for a large truck, so either a distributor, a private agency (hauler) or a cooperative association operates a truck and collects milk from several farmers.

After a certain distance varying between, say, ten and sixty miles, depending upon the topography, density of supply, etc., truck transportation becomes too expensive per hundredweight mile. It is expensive to operate a large truck (or truck and trailer) over country roads especially as production often becomes more scattered as distance from a city increases.

Under these conditions, milk is usually hauled by producers or by truck to a centralized country assembling point, cooled and loaded into a tank truck and hauled into the city. Also, there are definite limits to the distance from which milk can be hauled by tank truck. In some of the larger markets, milk is collected at country stations and cooled, and then shipped by train to the consuming center. In a few instances, milk is processed and bottled at a country point and shipped into the city for distribution.

In Figure 7 are shown, hypothetically, the transportation costs on milk into a large consuming center.^{5/} For the first ten miles, milk producers will haul their own milk, the lowest cost being five cents a hundred pounds (most of which is for handling costs). The total cost rises as distance from the consuming center increases, but after about fifteen miles, costs rise very rapidly. There is a zone in which milk may either be handled by the producer or by truck. From about twenty miles, however, it becomes more economical to haul by truck. This is probably true up to about seventy miles. From seventy to ninety miles is another zone of indeterminateness in which milk may be hauled either by truck (in cans) or assembled and hauled in tank truck.

^{5/} The variations here discussed are not considered in later Figures. Therefore, a different set of rates has been assumed, under which the differences in rates have been magnified.

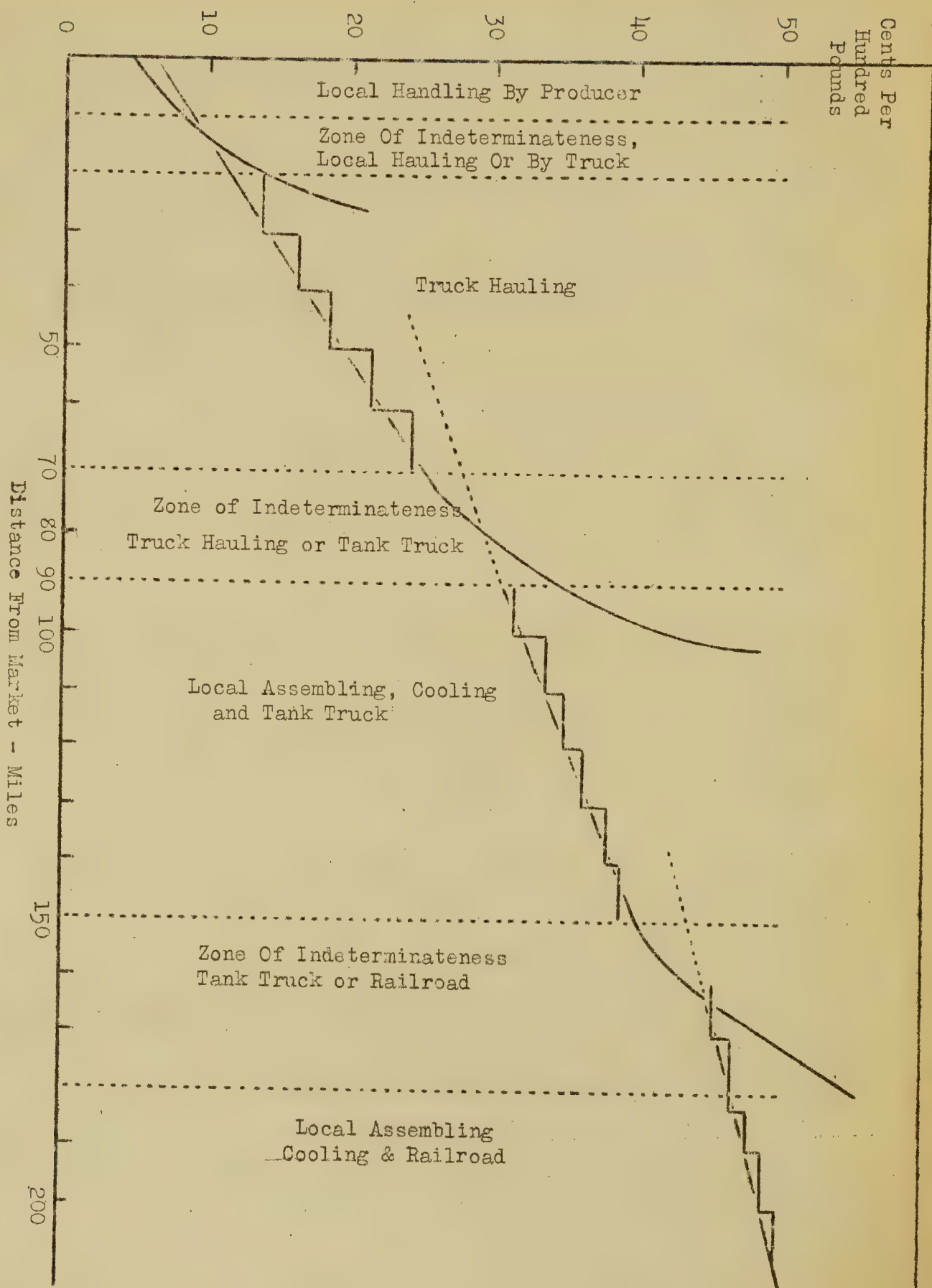


FIGURE 7. - THE INFLUENCE OF TRANSPORTATION RATE STRUCTURE UPON THE PRICE STRUCTURE FOR MILK 1/

1/ See text for assumptions on which diagram is based.

From ninety to one hundred and fifty miles, milk will be hauled in tank trucks, but for greater distances the time of hauling and load limitation would tend to make it more economical to assemble milk at a country plant and transport milk to city by train. There is a zone of indeterminateness from 150 to 180 miles in which milk may be hauled either by tank car or by railroad.

These distances would vary from market to market depending upon topography, state of roads, density of supply, relative costs of different methods of transportation, etc.

Transportation rates are commonly set on the basis of zones, under which rates, instead of increasing directly in proportion to distance, increase in a series of steps as is shown in Figure 7.

2. Complementary Services. Transportation rates usually include some elements of cost other than mere hauling. Milk has to be loaded and unloaded, iced or refrigerated. These are usually more or less fixed costs and do not vary with the length of haul. Thus the longer the distance hauled the lower these costs become per mile, resulting in a tendency for transportation rates per unit to decline as distance increases.

There is somewhat greater risk in hauling milk than in hauling butter -- milk has to be handled with more care and speed. For this reason a particular transportation agency may charge a higher rate for hauling an equal volume or weight of fluid milk than for butter or evaporated milk.

3. Rate Schedules. Many transportation agencies, especially railroads, do not arrange their rate schedules by miles, but by zones. It is thus possible that the rate will be the same on milk hauled 101 miles and 120 miles.

4. Topography of Country. Transportation costs per mile are usually somewhat higher in mountainous and hilly country than in flat, level country. This is due to the fact that more fuel is consumed, fuel costs are themselves high, there is more strain on vehicles and speed is greatly reduced. The condition of the roads is also important. Narrow, winding roads greatly reduce the speed of trucks and to a certain extent regulate the type of trucks that can be used.

5. Volume of Milk. Where dairies are small and scattered, the costs of collecting milk are considerably higher than where production is more concentrated. Frequent stops to pick up small quantities of milk and a long distance between stops materially increase hauling costs.

Railroads usually charge different rates, depending upon whether the commodity is hauled in carlot or less than carlot units.

6. Labor Conditions. An important part of hauling costs is the expenditure for truck drivers and mechanics. In cities where labor is cheap, rates may be somewhat lower than where wages are high.

7. Gasoline and Trucks. The prices of gasoline, oil, trucks and spare parts vary considerably in different parts of the country. This may have a material influence on hauling costs in different localities.

8. Control of Hauling. In some markets, all transportation is handled by one agency or by not more than two or three agencies. This reduces overlapping of routes to a minimum and should result in lower unit operating costs. In other markets, each producer or each distributor undertakes to make his own hauling arrangements. In such markets, a great deal of overlapping may occur. Efficient use is not made of transportation facilities; and consequently rates will tend to be higher than where there is centralized control of hauling.

The foregoing serves to indicate some of the factors that affect the transportation rate structure for milk.

E. The price structure as affected by the type of sanitation regulations.

Some of the factors that must be taken into account in determining how sanitation requirements affect the price structure for milk in different milk sheds and for a particular shed are as follows:

(1) The sanitation regulations in force in the milk shed. sanitation regulations are much more stringent in some markets than in others. There is, therefore, no possibility of developing a generally applicable cost figure which could be applied to the price structure for milk within a particular market and used in the practical determination of milk prices within a particular milk shed.

(2) The cost of meeting sanitation regulations, even though the regulations are the same in some markets as in others, may be widely different. Labor and material prices may vary materially between different markets, so that, even though the regulations may be exactly the same between particular markets, the cost of meeting the sanitary regulations may vary materially.

(3) In addition, health and sanitation regulations may be of such nature as to permit only those producers located relatively near the market to qualify as fluid milk producers. For example, the imposition

of a regulation requiring that fluid milk shall be delivered to the consumer within a given number of hours from the time it is produced would automatically set a maximum distance over which milk could be transported and might reduce materially the area from which fluid milk could be shipped to the market. In this case the price for fluid milk would increase until consumption was reduced, or until production within the area was increased, or both, to the point where the market would just use the milk produced within the new zone. This, of course, would increase the price spread between fluid milk and the product equivalent of milk used in other dairy products f.o.b. the market, and would increase the farm prices of fluid milk relative to the farm price of milk used in the production of other dairy products.

Also, sanitation regulations may not increase the costs of meeting the sanitation regulations by the same amount per unit of product on all farms. Some farms are better equipped than others and hence have smaller additional expenditures to meet requirements. Large dairies can ordinarily utilize equipment more economically and, therefore, their cost per unit for milk houses, cooling equipment and other outlays commonly required by health and sanitation regulations is lower. Such dairies have their competitive position improved by the raising of inspection requirements and may increase their production. Others may tend to shift to cream, or butter production, rather than make the additional outlays necessary. Depending upon these effects on supply, zones from which the various products are shipped to the market may be either enlarged or reduced by the imposition of or changes in the sanitation regulations.

While this discussion of the price structure has been developed entirely in terms of transportation costs and costs of meeting health and sanitation requirements, it should be apparent that variations in costs resulting from other causes will work out in practically the same manner. The important distinction is between the effects on the price structure of those costs which vary with distance from market, as does transportation, and costs which are likely to be rather uniform regardless of distance from the city. The influence of each of these types upon the price structure for milk is illustrated in a general manner by this analysis of transportation costs and costs of meeting health and sanitation regulations.

Variations between farms, such as those due to available equipment, type and condition of herds, type of land, labor supply and even personal preferences, will partially determine which farmers will produce milk for the various uses. Also the relative significance of these latter factors becomes greater as class differentials become smaller near the boundaries of zones. Therefore, their principal effect

is to cause the boundaries between the areas in which the several classes are produced to be less clearly defined than would be indicated by the simplified example set forth in the analysis.

(4) Also, there are higher sanitation regulations for fluid milk than for cream in some markets. This operates to establish higher supply-prices for milk produced for use as fluid milk than for milk produced for use as fluid cream.

The foregoing serves to indicate in a general way the manner in which sanitation regulations affect the price structure for milk within a milk shed, and how differences in the sanitation regulations may affect the price structure in different milk sheds.

F. The price structure; decentralized processing - uniform quality requirements - variations in production.

The manner in which the transportation rate structure and sanitation regulations affect the price structure for milk within a milk shed has been set forth in some detail in the preceding pages. In order to approach more nearly the price structure for milk as it actually exists in many milk markets consideration will be given to the price structure under the conditions that prevail when the assumption that there is no variation in production is dropped.

There are marked variations in the production of milk, which are perhaps most easily classified on the basis of time periods, such as day to day, week to week, year to year, and long time variations. There is some day to day variation in production, although this type of variation is undoubtedly negligible. The seasonal variation that takes place in milk production within most milk sheds ^{6/} is marked, production in the fall and winter months usually being much less than production in the spring and summer months. This type of variation is due largely to such factors as (1) the greater supply of succulent feed available during the pasture season, (2) time of freshening of cows, (3) inclement weather during the winter months, etc. In some areas, the seasonal variation in production is much more extreme than in others ^{7/} and even within the same area, production often shows a more marked seasonal variation in some regions than others within the area.

Year to year changes in production are due to such factors as (1) differences in feed production conditions that are associated generally with differences in weather and growing conditions, (2) shifts into and out of the dairy business due to changes in the relative

^{6/} Ross, H. A., Cornell University, Agri. Exp. Station Bulletin No. 527; also based on production data secured with respect to the markets operating under Federal milk licenses.

^{7/} Based on production data secured with respect to the markets operating under Federal milk licenses.

profitableness of milk production as compared to other types of agricultural production, (3) other factors that may operate intermittently, such as the imposition of a sanitary regulation to the effect that all milk sold in the market as fluid milk and cream must come from cows free from tuberculosis, which may operate to cause a marked decrease in the number of milk cows within the area, reduce production within the area quite markedly for a short period, and necessitate a temporary increase in the size of the milk shed.

Cyclical and long-time changes in production are probably associated with long time trends in demand, such as changes in the consuming habits of the people, the ebb and flow of population in urban centers and other factors such as changing opportunity cost relationships and type of farm organization and operation which set the limits of expansion of production within a given area, etc.

Seasonal variation is one of the most important types of variation in production. For purposes of presentation, therefore, the manner in which seasonal variation in production affects the price structure for milk within a milk shed is considered, with all other types of variation in production noted above held constant. ^{8/}

For most milk markets the volume of milk sold to consumers as fluid milk and cream varies somewhat from season to season, but the production of milk varies much more seasonally. Thus, during the period of low production, the production of milk within a milk shed may be just sufficient to meet market requirements (an amount about ten percent in excess of average daily sales), while during the season of flush production the volume of milk produced within the milk shed is usually far in excess of market requirements.

For purposes of presentation, it is assumed that (1) during the period of low production the volume of production within the 100-mile zone (see Figure 5) is equal to market requirements for fluid milk, (2) the sanitation regulations are the same for all milk regardless of the form in which it is sold, (3) production varies seasonally, (4) there is no difference between the seasonal production curves of individual producers, and (5) there are no variations in consumption other than daily. Under these conditions, there are several lines of procedure which distributors might follow with respect to purchasing milk from producers, such as (1) expanding and contracting the area from which milk is secured inversely to the expansion and contraction of milk production, (2) taking all the supply of milk produced within a given area (wherein the supply during the period of low production is just sufficient to meet the market requirements for fluid milk)

^{8/} For ease in presentation, the examples used to explain certain points are stated in terms of fluid milk only throughout the remainder of this paper. The same treatment is applicable in a general way to other dairy products.

and paying producers prices low enough to enable distributors to secure a high enough margin on fluid milk to cover the losses incurred in handling manufacturing milk during the period when supplies are larger than fluid requirements, or (3) purchasing milk from producers under a price arrangement which encourages producers to produce an even volume of milk throughout the year.

If distributors elected to secure their market requirements for fluid milk by contracting and expanding the area from which they draw their supplies inversely to the seasonal variation in production, refusing to take the production of distant shippers during the season of low production, the zones from which fluid milk would be drawn at different periods of the year would show marked difference from that shown in Figure 5. If, during the period of low production the volume of milk produced in the area within 100 miles of the market were sufficient to meet fluid requirements, the volume of milk produced within this zone would be far in excess of fluid requirements during the period of heavy production. For example, if the volume of milk produced during the peak production period were 40 percent above that produced in the low production period, the milk shed would be markedly contracted, about 40 percent in area if the density of production were constant throughout the area, but more than this if, as is often the case, the density of milk production declines as distance from market increases.

Assuming that the price of milk during the low production period were \$2.05 f.o.b. city, and the farm price structure the same as that indicated in Figure 5, the f.o.b. market price during the period of high production would be less than the f.o.b. market price during the season of low production by an amount equal to the saving in transportation costs involved in securing the supply of milk closer to the market during the flush period, and would vary between these limits during the year, depending upon the extent of the area wherein the volume produced was needed to meet fluid requirements. The farm prices would vary in the same manner, being equal to f.o.b. market prices less the cost of transporting milk to the city.

There are several factors, however, that operate to cause distributors to secure their milk from the same area throughout the year, rather than expanding and contracting the geographical scope of their operations to secure only that milk needed to meet fluid milk requirements. It is a matter of grave concern to the distributor that he be assured of a volume of milk sufficient to meet his market needs. Therefore, the risk involved in dropping a source of supply during the season of flush production, when it is practically certain

that that source will be needed during the season of low production, is a factor operating to check such action, since the distributor can never be certain that some competitor will not immediately furnish the shippers he dropped with an outlet for their milk, thereby forcing him to seek even more distant sources of supply during the season of low production.

Another factor of importance in this connection is that related to the costs of procuring milk from a rather constant area, as compared to the cost of procuring milk from an area that varies markedly throughout the year both in geographical extent, and the number of individual sources of the raw material. It undoubtedly costs less to procure milk from an area that stays rather constant with respect to geographical extent and number of producers, than from an area that varies markedly throughout the year in geographical extent and number of producers. Some of the savings are: (1) there are fewer field men needed to contact producers and secure their patronage; (2) bookkeeping and office expense is lower due to the fewer number of producers for whom accounts must be kept, statements must be prepared, and to whom payments must be made, (3) fewer laboratory tests have to be made, resulting in savings in laboratory technician labor costs, laboratory supplies, etc., (4) fewer individual containers have to be handled, involving savings in receiving labor, can washing, and sampling, and (5) there is less cost involved in furnishing various services to producers. It appears, then, that distributors can afford to pay producers a premium for evenness of production, so that they may, through the payment of such premium, secure the volume of milk needed by them to meet their fluid milk requirements from an area smaller in extent geographically, and in numbers of individual sources of supply, rather than securing their supply from an area that contracts and expands markedly as production decreases and increases seasonally. The amount of the premium distributors can afford to pay in this connection is the difference in the costs of procuring their milk supply from an area that remains practically constant in geographical extent and in number of individual sources of supply, and the cost of procuring milk from an area that varies markedly in geographical extent and the number of producers from whom milk is purchased.

There is another factor that exerts a tendency to cause the distributor to pay producers a premium for evenness in production. It has been pointed out previously that a volume of milk perhaps 10 percent in excess of average daily sales must be brought to market to meet daily variations in the volume of milk sold to consumers as fluid milk. In order to handle this volume of excess milk, which might be termed the daily operating reserve, the distributor has to integrate a by-product

enterprise with the main enterprise, or find some other channel of disposal. However, as far as this operating reserve is concerned, it is of such constant volume^{9/} that efficient methods of disposal as manufactured products can be developed. It is the marked variation in the seasonal excess and the difficulty of handling it efficiently that is an important factor in leading distributors to endeavor to secure a more even volume of supplies. This arises because more efficient methods of handling the excess can be developed when the supply is constant than when it varies markedly. Thus, during the season of flush production the distributor has to convert to other uses, or someone else does it in his stead, a volume of milk that may be several times as great as the volume so converted during the season of low production. This may be demonstrated by reference to some assumed figures, as follows:

1. The volume of milk sold daily as fluid milk throughout the year is 10,000 pounds.

2. The volume of milk brought to market is 11,000 pounds (10 percent of average daily sales needed to meet daily variations in fluid milk sales) in the season of low production and 14,000 pounds during the season of flush production.

The volume of milk that is diverted to uses other than fluid milk is therefore 1,000 pounds per day during the season of low production and is 4,000 pounds per day during the flush period, or 3,000 pounds greater than during the low period. This is entirely a seasonal excess (3,000 pounds of the 4,000) and represents an increase in the output of products other than fluid milk of 300 percent. Of course, under actual conditions, the increase in the volume of milk diverted to uses other than fluid during the flush season will be dependent upon the actual seasonal variation in production, which will, in some cases, be greater, and in other cases less, than indicated in the above example.

The seasonal excess in production therefore raised serious questions as to how it may be handled efficiently. It undoubtedly costs far more to handle a volume of excess milk that fluctuates markedly from season to season, as does a seasonal excess, than it costs to handle a volume of excess milk that remains rather constant from season to season. This is due to the fact that equipment, and in many cases labor, must be available to handle a peak load far in excess of the load during the period of low production when only a small volume of milk, equal to about 10 percent of average daily sales,

^{9/} Assumed, but practically all available data indicate that it is actually quite constant.

is converted to uses other than fluid milk. The distributor, therefore, can afford to pay a premium for evenness of production in addition to that already noted, the size of the premium being approximately equal to the difference in costs involved in handling a constant volume of excess (the operating reserve) as compared to handling a widely fluctuating volume of excess milk (the seasonal excess).

The foregoing indicates that distributors are able to pay a premium for evenness in production. It appears that it would be a matter of indifference to distributors whether they paid a given sum of money, including premiums for evenness of supply, to secure a particular volume of milk, or paid a sum of money about equal to the former for a similar volume of milk, the latter sum, however, being paid partly to producers delivering an uneven volume of milk, and partly for extra costs involved in procuring milk from an irregular area. In the former case, the farmer gets a higher percentage of the total volume of money expended for milk purchases and operating costs by the distributor than in the latter case, but total costs to the distributor remain about the same. It is probable that it is a matter of indifference to distributors whether they pay out a given sum of money in the one manner or the other. If distributors elect to secure their milk supply without paying producers a premium for evenness in production, it is evident that the seasonal variation in producers' prices would be quite marked.

It is, obviously, more economical to secure milk that is to be sold as fluid milk from sources near the market and to process the seasonal excess into milk products other than fluid milk at points outside the area wherein production is just necessary to meet fluid requirements, since the cost of transporting the fluid milk equivalent of manufactured dairy products from any given point is much greater than transporting such products to market in finished form. Of course, the extent of the saving will depend upon the size of the area and the like. Thus, during the period of flush production, fluid milk would be drawn from a point much nearer to market (depending upon the seasonality in production and relative density of production throughout the area) than during the season of low production. F.o.b. market prices for fluid milk during the year would vary directly with differences in costs of transporting milk from different points within the area. Thus, if milk is transported only 50 miles during the flush period and 100 miles during the low period, f.o.b. market prices, assuming transportation costs of 1 cent per hundredweight per mile, would vary within a 50-cent range during the year, being 50 cents higher during the period of low production than in the period of high production. Farm prices would vary in the same manner, being equal to f.o.b. market prices less transportation costs.

If, however, milk is brought to the market in fluid form and is then diverted to more concentrated forms such as cream, evaporated milk and butter, the product equivalent of such milk will sell at prices f.o.b. the market equal to the price at which the product can be shipped to the market from distant areas. Thus, if the butter equivalent of milk can be brought to the market from distant sources for \$1.00 f.o.b. the market (farm price plus transportation costs on the butter equivalent of 100 pounds of milk), the butter equivalent of milk brought to the city in fluid form will sell for only \$1.00 f.o.b. the market. The farm price of such milk would be materially less than \$1.00 per hundredweight. For example, if milk is shipped 50 miles and transportation costs are 1 cent per hundredweight per mile, the cost of transporting a hundredweight of such milk is 50 cents. If the product equivalent of such milk sells for \$1.00 f.o.b. the market, then the farm price of such milk would be 50 cents. Of course, if such milk is shipped any great distance as fluid milk, the product equivalent f.o.b. the market may not sell for enough to more than cover transportation costs from the farm to the market. Therefore, if milk is shipped to the market in fluid form for any appreciable distance and then converted to more concentrated products, farm prices for fluid milk are decreased appreciably. Under these conditions the seasonal variation of prices paid producers would be much more pronounced than that obtaining under the conditions treated previously.

G. The price structure, decentralized processing, special quality requirements for fluid milk - variations in production.

The seasonal variation in prices to producers would be even more marked than under the conditions treated previously if there were higher quality requirements for milk produced for use as fluid milk than for milk produced for use in other products.

This can be demonstrated quite readily by reference to the following example wherein it is assumed that (1) distributors bring to the market only that milk needed to meet their fluid requirements, which are assumed to be constant; (2) the area from which the fluid milk is drawn is contracted and expanded inversely to the seasonal variation in production; (3) distributors contract with producers to take their milk only for the periods wherein it is needed (obviously, under this sort of an arrangement the milk of some producers would be used as fluid milk all of the time while that of others would be so used at only certain specified seasons in the year); (4) the cost

of meeting sanitation requirements, if all milk were sold as fluid milk during the year, would be 20 cents per hundredweight per producer; (5) the alternative farm value of milk sold for any other purpose is \$1.00 per hundredweight; (6) transportation costs vary uniformly with distance, at one cent per hundredweight per mile; (7) during the season when the milk of producers in outlying areas is not needed for fluid milk uses, there are plants available for manufacturing it into other dairy products.

Under these circumstances the total yearly cost of meeting fluid milk requirements for outlying producers, or, rather, for those producers who sell their milk as fluid milk for a short period during the year, would have to be covered in a much higher farm price¹⁰ for the months during which they sell their milk as fluid milk. Under these assumptions, a producer selling his milk as fluid milk during the entire year would incur only 20 cents per hundredweight additional expense for meeting sanitation regulations. On the other hand, the producers who sold milk as fluid milk one month of the year would incur equal expenses over the entire year, or approximately twelve times as great per unit for the month during which such milk is sold as fluid milk. Thus, during the season of low production the farm price must be sufficient to cover, during one month, the entire cost of meeting sanitation regulations for the entire year, which, in the assumed case, would amount to approximately \$2.40 per hundredweight above the alternative use value for milk at the farm. The operation of this factor is depicted graphically in Figure 8.

Under these assumptions the f.o.b. city price (farm price plus transportation costs) ranges from \$2.20 per hundredweight during the month of high production to \$4.95 per hundredweight during the month of low production. If, as assumed, distributors purchase a uniform quantity of milk per month, the weighted average price would be approximately \$2.90 per hundredweight. If, however, production within the area within 100 miles of the market (see Figure 8) were uniform from month to month at a level equal to production during the month of high production obtaining in the example set forth above, the f.o.b. market price throughout the year would be \$2.20 per hundredweight as compared to the weighted average price of \$2.90 per hundredweight prevailing under the conditions as set forth in the previous example. If, therefore, the distributor

¹⁰/ Of course, part of the expenses of producing milk in conformance with the sanitation regulations is fixed, and part of them is variable. This introduces an additional complexity, and probably operates to change the seasonal price curve from that set forth in this analysis. However, it does not appear necessary to develop this point further for the purposes of this paper.

Farm Price Structure - Special Sanitation Requirements for Fluid Milk - Fluid Milk Area Varied Inversely to the Seasonal Variation in Production

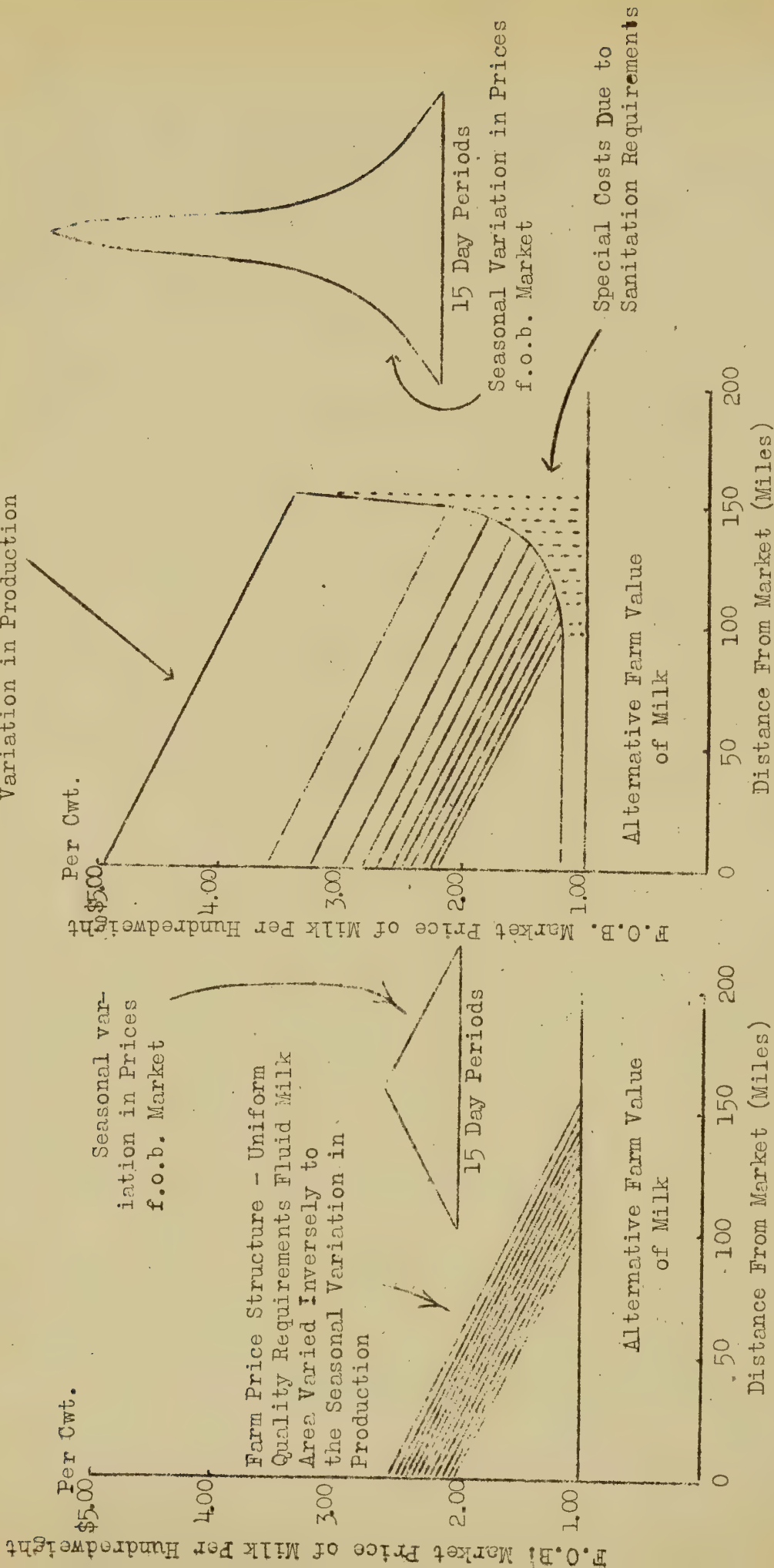


FIGURE 8. - THE PRICE STRUCTURE FOR FLUID MILK WITH DECENTRALIZED PROCESSING, SPECIAL QUALITY REQUIREMENTS FOR FLUID MILK ASSUMED.

could procure his milk supply from producers who produce a constant volume of milk throughout the year, it is to his best interest to do so, since he could secure his milk supply for less total cost than would be the case otherwise. ^{11/}

It should be noted that the marked seasonal variation in prices, which in any particular market would be different from that set forth above, depending upon the degree to which conditions in the market and the supply area vary from those assumed in the example, would in time be partially corrected by producers within the area changing their seasonal output curves in order to sell a larger volume of milk during the period when prices are seasonally high. However, it would be greatly to the advantage of some producers to shift their seasonal output curves, and little if any to others, depending upon the type of farm organization and operation followed by each.

It has already been indicated that distributors can afford to pay producers in such a manner that evenness in production is encouraged, due to the economies in procurement costs in securing milk from an area that is rather constant geographically and in number of individual sources of supply rather than an area that varies markedly in geographical extent and in the number of individual sources of supply. Also, it has been indicated that the economies involved in handling a minimum and rather constant volume of excess milk furnish an incentive for distributors to pay producers in such a manner that evenness in production is encouraged, in addition to the incentive noted above.

Heretofore it has been assumed, for purposes of analysis, that there is no difference between the seasonal production curves of individual producers. This assumption is now discarded and the analysis focused upon conditions more nearly in accordance with those that prevail in actual markets. It is well recognized that there are marked differences between the seasonal production curves of different groups of producers as well as individual producers. ^{12/} Thus, in any particular milk market there are many producers who produce milk practically in accordance with fluid milk needs, while others do not.

^{11/} For purposes of presentation and emphasis, this example has been exaggerated.

^{12/} Lininger, F. F., Pennsylvania State College, Agricultural Experiment Station Bulletin No. 231, also based on unpublished data in the files of the Dairy Section.

A brief consideration of the types of distributors and processors operating within any particular milk shed will now be given in order to bring into the analysis the conditions which, taken in conjunction with those set forth in the two preceding paragraphs and in Part III of this paper, suffice to explain why milk suitable for consumption as fluid milk is brought to market, one part of which sells for one price, another part for another, etc., in short, the development of a system of class prices.

In almost any milk market (except as is the case in those small villages and towns where practically all of the milk is distributed by producers) where the economy of the market has developed to the point that distributors have become specialized, different degrees of specialization obtain between distributors. Some distributors sell only fluid milk and/or cream, others sell only fluid milk and/or cream and a relatively small volume of manufactured by-products (butter, cheese, ice cream, etc.) and still others sell some fluid milk and cream and sell a relatively large volume of manufactured dairy products. Within the same area, other processors produce and sell manufactured dairy products entirely. In other words, all degrees of enterprise combinations are to be found, ranging from the highly specialized fluid milk distributor to the relatively as highly specialized manufacturer of manufactured dairy products. The reason for such specialization is, obviously, that the economies in organization and operation gained through specialization are quite marked. This point needs no further proof than that evident to anyone who observes the present organization and operation of industry, both agricultural and non-agricultural.

Under the above conditions, it may appear that it is to the interest of all fluid milk distributors and all processors of manufactured dairy products within a particular area to pay producers in such a manner that evenness in production is encouraged rather than for specialized fluid milk distributors to do this alone. This is true to a certain extent. However, milk is bulky and perishable and the storage of milk is not economically feasible. On the other hand, manufactured dairy products can be and are stored for relatively long intervals. Thus, manufactured dairy products are produced in largest volume during the spring and summer months and are stored until they are moved into consumption. This tends to even out the seasonal variation in the prices of manufactured dairy products. Under these conditions the premium that could be paid producers of milk for use in manufactured dairy products to encourage evenness in supply would be equal to the cost of storage from the flush production period until the product moves into consumption and the savings realized in manufacturing costs when the volume of product

produced throughout the year is constant rather than varying. In addition, the supply areas of individual manufacturing plants are, in most cases, much smaller than the supply areas of individual fluid milk plants so that transportation costs do not affect farm prices seasonally to as great an extent as is the case with fluid milk. Also, there are, in many cases, few sanitation requirements with respect to the production, care and handling of milk produced for use in the production of manufactured dairy products; and, in those cases where there are sanitation requirements with respect to such milk, they are rarely, if ever, of such nature that farm production costs are increased markedly. Thus, sanitation requirements for milk produced for use in the production of manufactured products do not operate to increase the seasonal variation in the price of such milk to any appreciable degree, certainly, in any case, to a much lesser extent than in the case of milk produced for use as fluid milk. These considerations suffice to explain in a large measure why pricing systems pointed to encouraging evenness in production have not developed with respect to milk produced for use in the production of manufactured dairy products.

In view of the foregoing, it appears that there is a wide range in the incentive of different types of distributors to pay producers in a manner that encourages evenness in production. For specialized fluid milk distributors this incentive is quite strong and diminishes in strength in relation to the diminution in the degree of specialization of distributors until, in the case of manufacturers of manufactured dairy products, there is little incentive to purchase milk from producers for evenness so that evenness in production is encouraged. Under these conditions fluid milk distributors will compete with each other to secure the patronage of those producers who produce a rather constant volume of milk throughout the year so that these producers become associated with specialized fluid milk distributors. Further, producers who produce a more variable volume of milk will become associated with less specialized distributors. Stated in other terms, when producers are classified on the basis of their relative seasonality of production, they will tend to become directly associated with distributors in accordance with the relation between the relative constancy of production of different classes of producers and the relative strength of the incentive of different classes of distributors to secure an even volume of supply of the raw material. Thus, within a milk shed different producers will receive different prices for milk, such differences, after adjustments for location differences, being due to relative differences in the seasonal variation of production of different producers. Under these circumstances and providing economic forces have time to work out their full effects, producers who produce a relatively constant volume of milk throughout the year will receive

higher prices than those producers who produce a relatively more variable volume of milk throughout the year. Furthermore, the producers who produce a relatively constant volume of milk throughout the year will tend to be associated with highly specialized fluid milk distributors (highly specialized in the sense that the operating unit is engaged almost entirely in the distribution of fluid milk), while those who produce a relatively more variable quantity will be associated with distributors who are less highly specialized (in the sense noted above).

Heretofore, no seasonal variation in consumption of fluid milk has been assumed. The next step in the analysis is to examine how (1) various factors operate to establish retail prices for fluid milk at a practically uniform level throughout the year and, with small seasonal variation in demand, lead to the development of the seasonal excess, and (2) the manner in which the bargaining arrangements between producers and distributors affect the price structure for milk within a milk shed.

PART III

The Utilization of Milk in a Market as Influenced by the Nature of the Demand for Milk.

Heretofore the analysis has been developed on the assumption that there were no variations in the amount of milk sold as fluid milk in the market from day to day and season to season, hence, granting seasonal variation in production, it followed that, during the period of the year when production exceeded consumption, a portion of the milk produced for use as fluid milk in a particular area had to be diverted to uses other than fluid milk. This assumption is now dropped, and the analysis is focussed upon the determination of (1) whether there are variations in the volume of milk sold in the market from day to day and season to season, (2) the factors that account for such variations, if any, and (3) whether such variations are or normally may be expected to be of sufficient amplitude to keep the total volume of milk sold as fluid milk in the market equal to the volume of milk produced for use as fluid milk in the area supplying the market. A solution of the problems noted above is to be found largely in a consideration of the nature of the demand for fluid milk and the manner in which milk is distributed to consumers.

When considered in light of the usual supply and demand analysis of the factors affecting the price of any particular commodity, it might be expected that retail milk prices to consumers would be adjusted or changed from day to day and week to week as changes took place in the supply and demand situation. Stated differently, if, on a particular day of the week or during any particular week, milk supplies increased or decreased, it might be expected that retail milk prices (assuming no change in demand) would vary inversely to the changes in supplies, especially in view of the fact that milk is a highly perishable product and cannot be stored advantageously.

As far as actual supply and demand conditions are concerned, there are relatively large day to day variations in demand ^{13/} and relatively small day to day variations in supply. Under these circumstances, it might appear that there would be marked variation in the retail price of milk from day to day. However, it is probable that this pricing procedure would necessitate a type of market organization or mechanism whereby buyers and sellers would meet, or through which buyers' day to day demand schedules and sellers' day to day schedules of reservation prices would

^{13/} This point is developed in more detail later.

be made known and would operate to adjust prices in accordance with the day to day supply and demand situation. This type of market organization or mechanism would be somewhat analogous to the present produce exchanges. However, such procedure would be markedly different from the present procedure through which day to day retail prices not only of milk but of many other products are established.

Milk is generally distributed to consumers early in the morning, and numerous milk routes are necessary in order that customers be reached. A driver on a milk wagon cannot ascertain what the demand for milk will be on his route until he has completed deliveries. Thus, as a practical matter, it is impossible for him to adjust his prices in accordance with the demand situation as he finds it. The same considerations apply to the distributive enterprise as a whole. If the demand schedules of consumers on each milk route, and the aggregate demand schedules of consumers purchasing from each distributor and for the market as a whole, were known and accurately predictable from day to day, then the dealer could (in theory) quote prices each day on the basis of day to day changes in the day to day supply and demand situation. As a practical matter this procedure would be extremely unworkable. The highly technical nature of the analysis that would be necessary if such procedure were to be followed, the cost of such precise analysis (which would probably have to be detailed enough to allow the determination and forecasting of the demand schedules on many, if not all, milk routes), and the partially indeterminate nature of the results secured would preclude following the procedure outlined. The only practical procedure is for the distributor to quote prices for a longer period of time, rather than to quote prices daily. This is the procedure distributors actually follow and, under these circumstances, day to day variations in the demand for fluid milk (day to day variation in supplies ^{14/} are negligible) are manifest in variations in day to day purchases by consumers at a constant price, rather than being manifest in day to day variations in price.

It may appear, when weekly and monthly periods are considered, that retail prices would change in response to weekly and monthly changes in the supply and demand situation. However, retail prices remain constant for relatively long periods. (See Table 1.) The reasons for retail prices remaining constant for relatively long periods of time, rather than being reduced so that the seasonal increase in the volume of milk produced for use as fluid milk which takes place during the summer months in most milk market supply areas is moved into consumption as fluid milk, will now be examined. The explanation of practically constant retail prices of fluid milk is to be found mainly in the nature of consumer's response to changes in prices and, arising mainly therefrom, the sales and price policy followed by distributors.

^{14/} This is not to say that supplies do not change from day to day, since there is a trend in daily supplies that is seasonal in character. However, this trend is small when considered on a

Table 2. Number of periods during which retail price of milk remained unchanged for a year or more in principal milk markets.

Market	Period during which price remained unchanged					Percentage which
	13-24 : months	25-36 : months	37-48 : months	Over 48 : months	Period : years covered	the period during which price remained constant for a year or more is of total months in entire period
New York	1	2		1	1909-31	40.4
Boston		1			1907-31	11.3
Philadelphia	1	2		1	1907-31	67.7
Chicago	1		1	2	1907-31	71.7
Baltimore	5	1		1	1909-33	61.3
Washington	4	1			1909-31	31.2
Minneapolis	4	1			1909-30	35.2
St. Paul	2	1			1914-31	28.2
St. Louis	1	1		1	1909-31	52.2
Atlanta	5		1		1907-31	40.3
Omaha	3				1909-31	22.1
Denver	2	1		1	1909-31	41.7
Los Angeles	5		1	1	1909-31	64.9

Based on data secured from reports of the Bureau of Labor Statistics, United States Department of Labor.

Statistical investigations have in general indicated that the demand for fluid milk by consumers is very inelastic; that is, that the change in the quantities of milk taken, following increases or decreases in price, is relatively very small. Two published studies ^{15/} for the Chicago and New York markets indicate that, during the period covered by the studies, when consumers recognized the necessity for changes in the retail price of milk, a one cent change in the retail price of milk per quart had a very slight immediate effect on sales and this effect was considerably diminished after five or six weeks.

Evidence relative to the influence of price changes upon milk sales has been obtained from an examination of the milk sales by distributors purchasing from cooperative associations in Baltimore, Maryland, Boston, Massachusetts, and the Twin Cities, Minnesota. In these cities the cooperative associations have a considerable share of the business of the market and changes in their sales are no doubt representative of the market as a whole. These data were analyzed by comparing the sales in the calendar month preceding the price change with the sales in the calendar month following the price change, ^{16/} after adjusting for the influence of the average seasonal variation in sales. Indexes of seasonal variation were calculated by the median-link~~-~~relative method, omitting the months in which price changes occurred. The compared months have been adjusted by dividing each by its corresponding seasonal index. The results of the analysis are given in Tables 2 to 4.

Examination of the data shows that usually a change in price results in an opposite but much smaller change in sales. In Boston, there were fifteen price changes (eight decreases and seven increases) during the period March 1922 to September 1931; in Baltimore there were only two changes, one decrease and one increase; and in the Twin Cities market there were seven decreases and three increases. Changes in sales in Boston were directly associated with changes in prices in four cases instead of being inversely associated as would be the case if other conditions remained the same. These four exceptions followed price changes occurring in July 1927, April 1928, July 1929 and August 1931; and there were four exceptions in the Twin Cities market in March 1926, November 1927, January 1931 and March 1932.

^{15/} Ross, H. A. The Marketing of Milk in the Chicago Dairy District. Ill. Agr. Exp. Sta. Bull. 269, pp. 503-510, 1925.

Ross, H. A. Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York. U. S. Dept. of Agr. Tech. Bull. 73, pp. 44-47, 1928.

^{16/} In some cases prices changed each month for two or more consecutive months. In these cases, the sales in the calendar month preceding the price change were compared to the calendar month following the last month in the series of consecutive monthly price changes.

Table 3. Changes in sales of fluid milk following changes in retail prices, Baltimore, Maryland, September 1926 to May 1931, inclusive.

Month	Sales :(30-day month basis) <u>1/</u>	Index of seasonal varia- tion <u>2/</u>	:Seasonally: adjusted sales <u>3/</u>	Retail prices per quart <u>4/</u>
	:1,000 gallons:	Percent	:1,000 gals:	Cents
September 1926	: 1,544	: 100.5	: 1,536	: 13
November 1926	: 1,510	: 101.0	: 1,495	: 14
Percent change	:	:	: -2.7	: +7.7
March 1931	: 1,431	: 100.2	: 1,428	: 14
May 1931	: 1,462	: 101.4	: 1,442	: 12
Percent change	:	:	: +1.0	: -14.3
Absolute aver- age percent change <u>5/</u>	:	:	: 1.8	: 11.6

1/ Table 18 Appendix.

2/ Table 17 Appendix.

3/ Computed from Columns 1 and 2.

4/ Table 19 Appendix.

5/ Represents average of percentage changes without regard to signs.

Table 4. Changes in sales of fluid milk following changes in retail prices, Boston, Massachusetts, March 1922 to September 1931.

Month	Sales (30-day month basis) <u>1/</u>	Index of seasonal variation <u>2/</u>	Seasonally adjusted sales <u>3/</u>	Retail prices, per quart <u>4/</u>
	Mill. lbs.	Percent	Mill. lbs.	Cents
March 1922	22.0	98.6	22.3	13.5
May 1922	22.8	99.5	22.9	12.5
Percent change			+2.7	- 7.4
June 1922	23.9	102.8	23.2	12.5
August 1922	22.9	103.1	22.2	13.5
Percent change			-4.3	+ 8.0
March 1923	23.0	98.6	23.3	14.5
May 1923	23.6	99.5	23.7	13.5
Percent change			+1.7	- 6.9
June 1923	25.6	102.8	24.9	13.5
September 1923	23.2	100.5	23.1	14.5
Percent change			-7.2	+ 7.4
October 1923	23.6	100.4	23.5	14.5
May 1924	25.2	99.5	25.3	12
Percent change			+7.7	-17.2
June 1924	26.2	102.8	25.5	12
October 1924	24.1	100.4	24.0	14.5
Percent change			-5.9	+20.8
February 1925	24.6	97.6	25.2	14.5
April 1925	25.2	97.2	25.9	13.5
Percent change			+2.8	- 6.9
April 1925	25.2	97.2	25.9	13.5
June 1925	28.0	102.8	27.2	13
Percent change			+5.0	- 3.7
June 1925	28.0	102.8	27.2	13
September 1925	25.7	100.5	25.6	14.5
Percent change			-5.9	+11.5

Table 4. (Continued)

Month	Sales (30-day month basis) <u>1/</u>	Index of seasonal variation <u>2/</u>	Seasonally adjusted sales <u>3/</u>	Retail prices, per quart <u>4/</u>
	Mill. lbs.	Percent	Mill. lbs.	Cents
October 1926	28.4	100.4	28.3	14.5
February 1927	27.8	97.6	28.5	14
Percent change			+0.7	- 3.4
June 1927	29.0	102.8	28.2	14
March 1928	29.5	98.6	29.9	15.5
Percent change			+6.0	+10.7
March 1928	29.5	98.6	29.9	15.5
May 1928	29.5	99.5	29.6	14.5
Percent change			-1.0	- 6.5
June 1928	29.9	102.8	29.1	14.5
September 1928	29.4	100.5	29.3	15.5
Percent change			+0.7	+ 6.9
November 1930	29.1	100.7	28.9	15.5
March 1931	30.2	98.6	30.6	12.5
Percent change			+5.9	-19.4
July 1931	31.6	106.8	29.6	12.5
September 1931	30.1	100.5	30.0	13.5
Percent change			+1.3	+ 8.0
Average percent- age change <u>5/</u>			-5.8	+11.9
Average percent- age change <u>6/</u>			+3.8	- 9.3
Absolute average percentage change <u>7/</u>			4.5	10.2

1/ Table 20 Appendix.

2/ Table 17 Appendix.

3/ Computed from 1/ and 2/.

4/ Table 21 Appendix.

5/ Represents average of percentage increases in price that were associated with percentage decreases in sales.

6/ Represents average of percentage decreases in price that were associated with percentage increases in sales.

7/ Represents average of percentage changes in price or in sales, without regard to signs, that were associated with opposite changes in sales or in price.

Table 5. Changes in sales of fluid milk following changes in retail prices, Twin Cities, Minnesota, March 1924 to August 1932.

Month and year	Sales 30-day-month basis ^{1/}	Index of seasonal variation ^{2/}	Seasonally adjusted sales ^{3/}	Retail prices per quart ^{4/}
	Thousand pounds:	Percent	Thousand pounds:	Cents
March, 1924	11,279	101.4	11,123	11.5
May, 1924	11,720	99.5	11,779	10
Percent change			+ 5.9	- 13.0
July, 1924	11,871	98.0	12,113	10
September, 1924	11,788	100.1	11,776	11
Percent change			- 2.8	+ 10.0
August, 1925	12,570	99.1	12,684	11
October, 1925	12,492	102.5	12,187	12
Percent change			- 3.9	+ 9.1
December, 1925	11,861	98.0	12,103	12
March, 1926	12,246	101.4	12,077	11
Percent change			- 0.2	- 8.3
August, 1927	12,111	99.1	12,221	11
November, 1927	12,608	101.7	12,397	12
Percent change			+ 1.4	+ 9.1
December, 1929	12,980	98.0	13,245	12
February, 1930	13,571	101.0	13,437	11
Percent change			+ 1.4	- 8.3
October, 1930	13,543	102.5	13,213	11
January, 1931	12,961	98.8	13,118	10
Percent change			- 0.7	- 9.1
November, 1931	12,724	101.7	12,511	10
January, 1932	12,203	98.8	12,351	9.5
Percent change			- 1.3	- 5.0
January, 1932	12,203	98.8	12,351	9.5
March, 1932	12,543	101.4	12,361	8.5
Percent change			+ 0.1	- 10.5
June, 1932	12,534	98.1	12,777	8.5
August, 1932	12,717	99.1	12,832	8
Percent change			+ 0.4	- 6.3
Average percentage: change ^{5/}			- 3.3	+ 9.6
Average percentage: change ^{6/}			+ 2.0	- 9.5
Absolute average percentage change ^{7/}			2.4	9.5

^{1/} Table 22, Appendix.

^{2/} Table 17, Appendix.

^{3/} Computed from columns 1 and 2.

^{4/} Table 23, Appendix.

^{5/} Represents average of percentage increases in price that were associated with percentage decreases in sales.

These unusual cases occur in periods when business conditions were changing rapidly and appear to be adequately explained by changes in these conditions.

Data contained in the reports of the Market Administrators for the various markets operating under Federal licenses also provide some indication of the consumer response to price changes in these markets. Only those markets where Class I milk was defined as whole milk, sold or distributed for consumption as whole milk, and where the size of the sales area has remained constant are considered. These data have been received for such a short period that it was impossible to compute a satisfactory index of seasonal variation and adjust sales for seasonal variation, except where other sales data from the same market were available for earlier periods.

The results of this latter study must be interpreted with some caution since there are other factors than price which influence sales. Sudden changes in temperature influence the volume of milk sold. There is a seasonal variation in total fluid sales, which is in part influenced by the vacation movement, and this in turn is affected by the prosperity of the community. Moreover, in a period of several months in recent years business conditions and consumer incomes have changed materially. These considerations limit somewhat the significance of the results of the study. It is important to note, however, that the results supplement the results obtained in the other studies, showing that changes in price are associated with changes in fluid milk sales, and that the changes in prices are relatively much greater than the changes in sales. The data are shown in Table 5 and indicate that an average change of 3.4 percent in sales is associated with an average opposite change of 12.3 percent in price.

It appears from the foregoing that the demand for milk is highly inelastic, especially when retail price changes are relatively small. When price changes are relatively large, it is probable that the change in consumption may be somewhat greater than when the changes in the retail price are relatively small, although the change in sales is probably less than directly proportional to the change in price, although the data that are available relative to this point are inconclusive. ^{17/} Stated differently, while the demand for milk is less inelastic when large, rather than small, price changes are considered, the coefficient of elasticity of demand still appears to be considerably less than unity.

^{17/} See also Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, Technical Bulletin No. 73, U. S. Department of Agriculture.

Table 6. Summary of changes in sales and in prices
in specified cities.

Sales area and period	Estimated aver-	Retail delivery
	age daily	price, per
	Class I sales	quart
	Pounds	Cents
Boston:		
April 1934 to September 1934	1,618,000	11
October 1934 to February 1935	1,592,000	12
Percentage change	- 1.6	+ 9.1
March 1935 and April 1935	1,576,000	13
Percentage change	- 1.0	+ 8.3
Detroit:		
April 1934 to June 1934	1,221,000 ^{1/}	19
July 1934 to February 1935	1,167,000 ^{1/}	11
Percentage change	- 4.4	+10.0
March 1935	1,153,000 ^{1/}	12
Percentage change	- 1.2	+ 9.1
Evansville:		
May 1934 to September 1934	43,764	9
October 1934 to March 1935	41,635	9.5
Percentage change	- 4.9	+ 5.6
Grand Rapids:		
August 1934 and September 1934	127,123	9
October 1934 to March 1934	127,208	10
Percentage change	0.0	+11.1
Kalamazoo:		
July 1934 to November 1934	36,733	10
December 1934 to February 1935	40,720	8
Percentage change	+10.9	-20.0
March 1935	39,397	10
Percentage change	- 3.2	+25.0
Absolute average percentage change ^{2/}	3.4	12.3

Tables 24 to 28, inclusive, Appendix.

^{1/} Adjusted for seasonal variation.

^{2/} Represents average of percentage changes without regard to signs.

On the basis of the foregoing, it appears that it would require a very marked decrease in price in order that any appreciable seasonal increase in the volume of milk produced for use as fluid milk be moved into consumption as fluid milk in the market as a whole. It is rather generally recognized that changes in the prices received by producers that are associated with changes in retail prices are relatively greater than the changes in retail prices. This is due to the fact that some of the more important elements in the gross margin between the price received by producers and the price at which the milk is sold at retail (transportation costs, country station charges and the like) do not change with changes in volume; in other words, they are fixed charges per unit. This being the case, the seasonal variation in prices received by producers would be relatively greater than the seasonal variation in retail prices, which, as was pointed out before, would have to be quite marked in order that any appreciable seasonal increase in the production of milk produced for use as fluid milk within the supply area be consumed as fluid milk. Over a period of time, the market seasonal variation in prices received by producers would tend to be reduced, since producers would change the seasonality of their production in order to sell a larger volume of milk at the time of year when prices were seasonally high, and would reduce their sales during the period when prices were seasonally low. However, it would be greatly to the advantage of some producers to change the seasonality of their production and little, if any, to others, depending upon the type of farm organization and operation followed by each. Thus, given time for economic forces to work out their full effects, the seasonal variation in supplies and prices received by producers, and consequently the seasonal variation in retail prices, would be much less marked than would appear to be the case at first.

The second limitation to lowering prices on the basis of the seasonal increase in the volume of milk produced for use as fluid milk by any dealer is that, in order to hold the new customers later when supplies in the market are short, dealers would have to develop new sources of supply during the short season in order to have sufficient milk to meet the requirements of their larger business. These new sources involve an expense in development (see Part II, Section G) and may also have an equal or greater seasonal variation in production the following year. The alternative is to raise prices when supplies are short and thereby reduce the customer's takings or to fail to serve the added customer. Either of these latter procedures is sure to lead to dissatisfaction.

The foregoing facts and considerations suffice to explain in large part why retail prices of fluid milk tend to remain practically constant on a seasonal basis. Thus, instead of retail prices showing marked seasonal variation of such magnitude that the seasonal changes in volume of milk produced for use as fluid milk be moved into consumption as fluid milk, retail prices remain practically constant seasonally and seasonal changes in demand are reflected in greater or less takings of fluid milk, as the case may be, at the ruling level of prices. Such seasonal variations in demand are generally quite small, and are much less than the seasonal variation in the volume of milk produced for use as fluid milk that obtains in most milk market supply areas. (See Table 17, Appendix.) ^{18/} Thus, unless the volume of milk produced for use as fluid milk is equal to fluid milk requirements on a seasonal basis, the seasonal increase in the volume of milk produced for use as fluid milk is diverted to uses other than fluid milk. Stated differently, the seasonal increase in the volume of milk produced for use as fluid milk becomes a seasonal excess over fluid milk requirements. In the next part of the analysis of the price structure for milk within a milk shed, an explanation of the development of class prices, or the classified price plan of payment for milk by distributors, will be set forth.

^{18/} See also Ross, H. A., The Marketing of Milk in the Chicago Dairy District, Ill. Agr. Exp. Sta. Bull. No. 269, and Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, U. S. Dept. of Agr. Tech. Bull. No. 73.

Part IV

The Price Structure for Milk within a Milk Shed - The Development of Class Prices.

The analysis of the price structure for milk within a milk shed will now be focussed upon the manner in which class prices or, stated more precisely, the classified price plan of selling milk to distributors, develops in a milk market. At this point it is important to set forth as clearly as is possible in a short paper the difference between the classified price plan and the rating plan.^{19/} The classified price plan is a method of selling milk to distributors, while the rating plan is a method of prorating to producers the proceeds of sales to distributors. The classified price plan does not necessarily need to be complemented by the operation of a rating plan, and classified price plans are often used where no rating plan is in operation. On the other hand, the rating plan under certain forms of administration becomes in effect a classified price plan and a plan for prorating to producers the proceeds of sales to distributors. For example, in some markets, producers associations bargain for "base" and "surplus" prices; "bases" are established for individual producers for which "base" milk producers receive "basic" prices. Producers are shifted among distributors in such fashion that the total bases of producers delivering milk to any particular distributor are approximately equal to such distributor's sales of fluid milk. However, pricing milk to distributors in accordance with a classified price plan is usually more precise than that just noted, with a more strict accounting and pricing of milk according to use, and is not necessarily operated in conjunction with a base-rating plan.

For the purposes of this paper, the classified price plan is defined as a method of selling and pricing milk to distributors in accordance with the use made thereof, while the base-rating plan is defined as a method of prorating to producers the proceeds of sales to distributors.

It has already been demonstrated (see Part II) that, assuming little seasonal variation in the demand for milk, certain supply characteristics operate so that, given differences in individual producers' seasonal output curves, and providing that economic forces have time to work out their full effects, producers who produce a relatively constant volume of milk throughout the year will receive higher prices, other factors accounted for, than producers who produce a relatively more variable volume of milk throughout the year. Furthermore, the producers who produce a relatively constant volume of milk throughout the year will tend to become associated with highly specialized fluid milk distributors (highly specialized in the sense that the operating unit is engaged almost entirely in the distribution of fluid milk, while those who produce a relatively more variable quantity throughout the year will tend to

^{19/} Often called base-surplus, base-rating, and the like.

become associated with distributors who are less highly specialized (in the sense noted above). The assumption that there is little seasonal variation in the demand for milk was then examined, (Part III) and it was found that certain factors operate so that there is marked seasonal uniformity in retail fluid milk prices, and seasonal changes in demand, which are very small in most cases, are reflected in slight seasonal changes in the quantities of fluid milk consumed at practically constant prices, rather than seasonal changes in the quantities of milk consumed that are associated with seasonal changes in retail fluid milk prices. It is in the analysis of the seasonal behavior of retail fluid milk prices, and the effects such behavior would tend to have upon the prices received by producers, that the reasons for the development of the seasonal excess were ascertained.

Once the development of the seasonal excess has been demonstrated, the basis for the effort on the part of specialized fluid milk distributors to secure a uniform volume of milk throughout the year becomes apparent. Under these circumstances, the argument that specialized fluid milk distributors tend to secure milk to meet the needs of their fluid milk trade, which are practically constant seasonally, from producers who produce a relatively uniform volume of milk throughout the year, such producers receiving higher prices, other factors accounted for, than producers who produce a relatively more variable volume of milk throughout the year and, consequently, tend to become associated with less highly specialized distributors, applies with especial force.

It should be noted that it is not contended that distributors select producers who produce a relatively uniform volume of milk throughout the year at random throughout the milk shed. It is rather well recognized that, generally speaking, producers within a particular type of farming area have markedly similar seasonal output curves. Thus, a distributor who wishes to secure a uniform supply of milk throughout the year can usually operate in an area or areas where a fairly large supply of such milk is available.

The situation treated above with respect to the procurement of milk by distributors is strikingly similar to the situation that obtains when distributors purchase their milk in accordance with the provisions of a formal classified price plan. In the former situation, there is a close approximation to the purchase of milk on a classified price basis, considering the market as a whole, due to the fact that those distribution units which are highly specialized, i.e., which distribute by far the larger portion of the milk they secure as fluid milk, tend to pay higher prices for milk than distribution units which are less highly specialized, i.e., which utilize relatively more of the milk they secure as manufacturing milk. The difference between this method of purchasing milk and a formal classified price method of purchasing is merely one of the degree and precision with which milk is classified in accordance with the use made thereof.

Producers' cooperative associations have recognized the principles noted above in bargaining with distributors and have developed the system of formal class prices whereby milk is priced by cooperatives to distributors in accordance with the form in which milk is sold by distributors. Thus, a formal system of class prices, intended to secure the same result, is substituted for the rather informal system of class prices discussed above. The distributor with the larger use of milk in fluid sales pays a higher average price than the one with a considerable utilization in manufactured products. The system of formal class prices has the advantage for the producers' cooperative association of simplifying the bargaining arrangements, since it automatically establishes the basis of payment for the different dealers once the general terms for the market are determined. Without class prices, individual bargains would be necessary with each dealer in order to insure producers the full value of their particular milk, and the association would be exposed to the criticism of over- or under-pricing the milk of particular producers and over- or undercharging particular distributors. Class prices dispose of this necessity for individual bargains and result in payments corresponding to the prices which would have been arrived at under proper individual bargaining.

In addition to the seasonal factors treated above which lead to the development of a classified price plan of selling milk to distributors, there are certain types of organization of supply that would lead to the development of a formal class price system, even though the volume of milk produced throughout the year and the volume of milk consumed in the market throughout the year were precisely correlated, except for daily variations in demand and supply. In such cases, the reason for the development of a classified price plan is to be found in the fact that there must be brought to market a volume of milk in excess of daily average sales, such excess volume being needed to meet daily variations in sales.

It is rather well recognized that there are significant variations in the amount of milk sold from day to day in a fluid milk market, such variations being attributable to such factors as (1) consumption and working habits of the people which tend to show a regular day of the week variation, (2) holidays, and (3) changes in temperature.

Consumption and working habits of the people are such as to cause a rather regular day of the week variation in the sales of various products. Most business concerns, for example, do not operate on Sunday and many also close operations on Saturday afternoons. The Sunday dinner is frequently a heavier and more elaborate meal than that served on week days. These factors affect wholesale and retail sales of the various products differently. Wholesale sales of milk and cream are ordinarily low on Sunday, with sales to restaurants and cafeterias also low on Saturday. Sales of cream to stores are usually large on Saturday, Friday and Monday. Route sales of milk and cream are heavier on Sunday.

Examples of the variation in the average sales on various days of the week for several markets are given in tables 6 to 10, inclusive. In general, the greatest variation is found in cream sales, the range for the New York market for all cream being from 84.7 percent of the average daily sales for the week on Sunday to 127.9 percent on Saturday. For all milk in the same market the range was from 90.2 percent of the average daily sales for the week on Sunday to 102.8 percent on Friday. ^{20/} Examination of the tables indicates a greater variation in wholesale sales of fluid milk than of the retail sales, but in the case of cream the reverse may be the case. These variations differ in the various sections of a large city depending largely upon the economic status of the consumers and the number of persons who lunch away from home during the day. ^{21/} Since dealers have varying proportions of retail and wholesale business and serve different sections of the population, they are unlikely to have variations in sales corresponding to those in the market as a whole. Some dealers will have larger variations in sales and others smaller variations. The difference in the character of the business of dealers and the consequent differences of sales by day of the week, even for the same type of products, are shown in tables 11 to 14, inclusive. These tables show the variation in the sales of Milwaukee, Wisconsin, dealers during the week of April 22 to 28, 1934. The daily sales of each dealer have been shown as a percentage of his own average daily sales for the week. This variation in sales among dealers means that the excess milk above the average daily sales of the market is higher than would be the case if dealers had available some method of integrating their individual fluctuations in sales with other dealers having different fluctuations, through a shifting of milk between them.

^{20/} Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, United States Department of Agriculture - Technical Bulletin 73, 1928.

^{21/} Ibid, p. 32.

Table 7. Daily fluctuation in sales of milk and cream
in the New York Metropolitan Area, 1924.

Type of sale	Percentage of average daily sales for the week					
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	Percent	Percent	Percent	Percent	Percent	Percent
Retail sales of milk						
Qts., Grade B	103.7	99.5	99.6	99.8	99.2	99.3
Qts., Grade A	100.5	100.0	100.2	100.3	99.8	99.4
Qts., Certified	98.9	100.9	99.8	100.6	100.6	98.9
Qts., Buttermilk	76.4	106.9	106.5	106.3	102.9	94.5
Pts., Grade B	77.6	106.8	106.9	108.0	108.0	85.5
1/2 Pts., Condensed	106.0	96.9	99.0	105.8	93.8	103.8
Retail sales of cream						
1/2 Pts., Light	108.0	98.0	99.7	103.5	97.8	96.4
1/2 Pts. Extra Heavy	176.3	83.4	88.8	92.3	86.2	90.9
Wholesale sales of milk						
Qts., Grade B	92.8	99.4	100.8	99.6	100.8	101.4
Pts., Grade B	46.8	115.2	116.6	115.7	118.4	71.2
Bulk, Grade B	73.5	107.3	103.1	104.2	104.3	100.4
Condensed Milk	42.7	114.5	86.9	93.4	83.6	148.3
Buttermilk	34.4	126.5	106.0	109.2	114.4	94.5
Wholesale sales of cream						
Light	42.3	118.9	95.6	93.7	94.9	132.8
Extra Heavy	72.9	107.7	88.9	91.4	86.6	140.3

Compiled from "Some Factors Affecting the Demand for Milk and Cream in the
Metropolitan Area of New York," by H. A. Ross, United States
Department of Agriculture, Technical Bulletin No. 73, June 1928.

Table 8. Daily fluctuation in retail, wholesale and total sales of fluid milk and cream in Reading, Pennsylvania.

Type of sale	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Milk:							
Retail	107.49	95.18	98.62	98.54	99.01	99.18	101.97
Wholesale	61.36	106.27	102.46	102.86	104.50	115.20	107.35
Total	91.90	98.93	99.92	100.00	100.86	104.60	103.79
Cream:							
Retail	136.07	87.18	99.62	96.63	87.51	85.99	107.01
Wholesale	77.21	102.33	96.32	111.62	105.01	95.83	111.67
Total	112.91	93.14	98.32	102.53	94.40	89.87	108.84

Compiled from "Distribution and Consumption of Milk in Reading, Pennsylvania,"
by T. K. Cowden, Pennsylvania Agricultural Experimental
Station, Technical Bulletin 614, November 8, 1933.

Table 9. Daily fluctuation ^{1/} in sales of certain dairy products in Chicago and suburbs.

Type of sale	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Milk, Quarts	104.7	97.2	99.9	99.3	100.4	100.4	100.0
Milk, Pints	64.3	100.8	104.2	104.9	104.4	105.2	81.3
22% Cream, 1/2 Pints	153.7	93.7	100.7	99.3	103.1	97.6	99.3
32% Cream, 1/2 Pints	311.9	76.4	38.1	96.3	107.3	93.0	115.3
	:	:	:	:	:	:	:
	:	:	:	:	:	:	:

Compiled from "The Marketing of Milk in the Chicago Dairy District," Illinois Agricultural Experiment Station Bulletin No. 269.

^{1/} Based on average retail sales to more than 200,000 families during the three-year period 1920-1922. Average sales for the five days Tuesday, Wednesday, Thursday, Friday and Saturday = 100 percent.

Table 10. Daily fluctuation in sales and receipts of milk and cream for the Pittsburgh market, during the last two weeks of July, 1933. ¹/₂

Type of sale	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Regular fluid milk	76.25	105.16	102.56	100.69	102.01	109.44	103.90
Special fluid milk	95.09	97.74	103.66	97.06	105.17	96.31	104.96
Total fluid milk	76.67	104.99	102.58	100.61	102.08	109.15	103.92
Fluid Cream	92.36	92.41	100.60	93.22	105.57	99.82	116.02
Dealer purchases of milk and cream	98.35	97.26	100.21	102.83	101.31	98.55	101.48

Compiled from "The Distribution and Consumption of Milk in Allegheny County, Pennsylvania," by T. K. Cowden, and C. G. Gifford, Pennsylvania Agricultural Experiment Station Technical Paper 641, March 13, 1934.

¹/₂ Based on reports received from 35 dealers handling 77 percent of the fluid milk sales in the market.

Table 11. Daily fluctuation in the sales of milk and cream in Williamsport, Pennsylvania, March, April and May 1933.

		Percentage of average daily sales for the week						
Type of sale		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		Percent	Percent	Percent	Percent	Percent	Percent	Percent
<u>Milk</u>								
Retail		102.35	97.81	99.99	100.04	99.71	99.69	100.40
Wholesale		65.86	104.23	102.25	105.63	105.70	111.06	105.25
Total		94.94	99.17	100.80	101.15	100.76	102.97	101.09
<u>Cream</u>								
Retail		138.75	87.51	97.81	96.18	90.10	88.15	101.52
Wholesale		88.92	95.35	93.73	102.59	93.77	105.94	118.20
Total		111.75	93.14	95.16	98.23	92.46	99.07	110.19

Compiled from "Distribution and Consumption of Milk in Williamsport, Pennsylvania," by
T. K. Cowden, Pennsylvania Agricultural Experiment Station Technical Paper
No. 615, November 8, 1933.

Holidays also exert a considerable influence upon milk and cream sales, since these are occasions for special activities. On certain of these days, notably during the summer, there is a considerable movement of people out of the city, while other holidays are feast days. In general, milk consumption appears to be somewhat decreased on holidays except for increases at Thanksgiving and Christmas. Sales of extra heavy cream at Christmas and Thanksgiving increase by over eighty percent. Data for the New York market are given in Table 15.

Temperature is also an important factor in short-time variations in the demand for milk. In general, an increase in temperature is associated with an increase in demand, and a decrease in temperature is associated with a decrease in demand. In the New York market it was found that temperature changes in winter are more marked than in summer but that a change of a given number of degrees produced about three times as great a change in summer as a similar change in the winter. ^{22/}

On the basis of the foregoing, it appears that a considerable volume of milk in excess of average daily sales must be brought to market in order to have a supply sufficient to cover daily variations in the demand for milk. Few data are available relative to the necessary size of this daily excess, hereinafter termed the operating reserve, but it appears to range from ten to twenty percent of average daily sales at least, and perhaps higher in some markets.

If the producers in the market so organize their service of supply to the distributors so as to remove from them entirely or even partly the necessity of carrying this "operating reserve", producers can secure a higher price for the delivered milk since the distributor has always available all the milk he needs for his fluid milk trade and is also relieved of the necessity of procuring his milk from a large number of individual producers and is under no necessity of taking milk, a portion of which must be disposed of in channels other than fluid milk. This is one of the services which operating producers' cooperative associations commonly provide distributors purchasing from them. They are thus able to sell distributors milk at a higher price than they are able to secure when distributors are not so serviced. There would thus arise what amounts to a class price for milk, distributors paying a certain price for the milk called for from the association and used for fluid purposes, with the association utilizing the remaining milk in the most profitable possible manner but incurring yielding somewhat lower returns than the fluid sales. The difference between the prices charged distributors for

^{22/} Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, United States Department of Agriculture Technical Bulletin No. 73, pp. 39-44.

Table 12. Daily fluctuation in wholesale sale of
pints of regular milk, Milwaukee, April
21-28, 1934.

Company:	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wed.	Thurs.	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
H	103.0	113.1	123.5	72.1	154.4	72.1	154.4
I	110.3	133.6	135.2	139.4	140.4	131.7	8.7
M	7.8	134.4	127.7	128.2	131.0	137.3	33.6
R	73.3	115.1	95.5	102.1	109.9	124.3	79.8
S	25.9	129.6	51.9	25.9	181.5	155.6	129.6
D	2.1	85.6	139.1	152.0	128.5	128.5	64.2
K	59.1	106.8	88.6	70.5	213.6	75.0	86.4
O	35.7	123.5	109.8	120.8	109.8	118.0	82.4
T							
U	0.0	116.6	116.7	116.7	116.7	116.7	116.7
A	215.5	90.0	81.5	78.6	82.8	79.9	71.7
C	57.7	112.2	101.6	146.8	90.3	112.9	56.5
V	65.8	103.5	103.1	112.9	116.9	96.7	98.1
B	15.6	132.4	131.7	133.8	123.8	122.8	39.9
E	0.0	197.1	156.3	149.5	156.3	13.6	27.2
F	0.0	0.0	0.0	700.0	0.0	0.0	0.0
L	61.8	102.9	123.7	113.2	139.0	72.0	82.4
P							
Q							
Y	100.0	0.0	0.0	200.0	0.0	200.0	200.0
Weighted:							
average:							
for all:	69.6	119.1	115.6	116.5	117.6	112.6	49.0
dealers:							

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration, and Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

Table 13. Daily fluctuation in retail sales of
quarts of regular milk, Milwaukee,
April 22-28, 1934

Company	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
H	91.9	96.2	103.0	98.6	103.6	102.9	103.8
I	99.6	97.6	100.2	100.2	100.7	100.8	100.9
M	100.2	96.2	99.0	100.1	100.9	99.7	103.9
R	102.2	96.5	101.7	98.8	100.8	98.0	102.0
S	99.3	97.4	102.2	96.3	99.7	98.7	104.4
D	96.4	101.1	95.8	102.8	102.7	97.8	103.4
J	100.1	103.3	98.9	98.5	92.7	99.2	107.3
K	99.3	97.4	100.8	100.0	100.2	100.3	102.0
U	98.7	99.6	100.5	99.9	99.1	100.2	102.0
A	100.7	97.3	98.1	100.0	101.1	99.2	103.6
C	97.3	103.4	99.7	95.4	104.1	98.9	101.2
V	99.4	96.9	101.8	101.3	102.8	99.2	98.6
B	99.8	98.1	97.8	101.0	101.9	97.6	103.8
E	96.3	100.7	95.1	103.6	102.7	96.3	105.3
F	95.3	102.4	95.5	102.9	101.4	98.6	103.9
G	95.1	99.0	100.4	99.2	101.2	100.1	105.0
L	97.9	96.3	99.4	103.5	103.7	98.8	100.4
P	99.0	98.5	99.3	100.5	100.1	101.0	101.6
Q	98.9	98.9	99.3	96.5	103.9	99.9	102.6
Y	99.0	100.8	97.4	99.8	100.0	100.8	102.2
Weighted average for all dealers	99.7	97.9	98.4	100.4	101.3	99.0	103.3

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

Table 14. Daily fluctuation in wholesale sales of
quarts of 18% cream, Milwaukee, April 22-
28, 1934

Company	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
H	35.9	89.7	80.7	107.7	116.7	98.7	170.6
I	78.4	106.4	95.2	89.6	95.2	117.6	117.6
M	80.6	115.1	96.7	71.4	87.5	78.3	170.4
R	100.0	76.5	100.0	70.6	129.4	94.1	129.4
S	116.7	58.3	116.7	58.2	116.7	116.7	116.7
D	0.0	0.0	0.0	0.0	700.0	0.0	0.0
J	33.3	166.7	66.7	100.0	100.0	200.0	33.3
K	83.1	99.0	87.9	95.8	97.4	111.7	125.1
O	9.5	131.8	113.0	116.1	103.6	119.3	106.7
T							
U	53.8	107.7	107.7	107.7	107.7	107.7	107.7
A	97.6	91.0	101.6	88.3	101.6	90.7	129.2
C	65.1	114.0	146.4	97.7	97.7	65.1	114.0
V	75.4	86.2	53.8	96.9	96.9	118.5	172.3
B	72.6	103.6	94.7	108.9	95.8	101.8	122.6
E	89.1	50.9	127.3	101.8	101.8	76.4	152.7
F	116.7	58.3	116.7	116.7	0.0	58.3	233.3
G	94.2	67.4	114.4	107.7	107.7	94.2	114.4
L	311.1	0.0	77.8	0.0	77.8	155.5	77.8
P	41.2	41.2	41.2	123.5	41.2	82.4	329.3
Q	0.0	0.0	0.0	0.0	0.0	700.0	0.0
Y	140.0	93.3	93.3	93.3	186.8	0.0	93.3
Weighted							
Average	77.0	99.9	95.9	97.7	98.8	101.5	129.2
all deal- ers							

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

Table 15. Daily fluctuation in retail sales of half pints of 18% cream, Milwaukee, April 22-28, 1934

Company	Percentage of average daily sales for the week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
H	119.5	85.4	97.4	119.5	78.5	100.7	99.0
M	152.0	74.7	92.8	93.1	90.7	89.6	107.1
R	206.1	76.4	84.0	81.5	89.1	76.4	86.5
S	301.3	35.4	53.2	57.6	79.7	66.5	106.3
D ¹ / ₂	211.7	78.4	96.3	0.0	88.0	101.8	123.8
K ² / ₂	165.6	82.8	90.3	94.1	86.6	82.8	97.8
E	164.0	84.0	89.3	97.3	73.4	84.0	108.0
G	95.5	190.8	0.0	79.5	143.2	95.5	95.5
Weighted:							
average :	159.9	76.5	91.3	88.0	88.6	89.3	106.4
all dealers :							

Compiled from unpublished data secured during the Milwaukee Milk Survey conducted by the Federal Emergency Relief Administration and the Wisconsin Emergency Relief Administration under the direction of the Agricultural Adjustment Administration.

1/ 19%

2/ 18¹/₂%

Table 16. Effect of holidays on sales of retail milk and cream in the New York Metropolitan Area - 1924.

		Change in sales <u>L/</u>											
Product	New Year's Day	Lincoln's Birth-day	Washington's Birth-day	Easter	Pass-over week	Memorial Day	Fourth of July	Labor Day	Yom Kippur	Thanks-giving	Christmas		
	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent
Quarts - Grade B	-1.4	+1.2	- .6	0	- 1.5	- 1.2	- 2.4	- 6.0	0	+ .6	+ 3.0		
Quarts - Grade A	0	- 1.2	- .6	- .6	- 1.4	- 1.2	- 2.4	- 4.8	0	+ .6	+ 1.2		
Quarts - Certified	- 3.0	- 1.8	- 2.9	.0	- 1.8	- 1.2	- 1.8	- 6.5	- .6	- 1.2	- 1.8		
Pints - Grade B	-24.0	-17.4	-20.7	+1.6	- 2.6	-26.5	-28.3	-29.8	-5.5	-25.1	-26.1		
Extra heavy cream	+44.0	+ 2.1	+11.1	+2.8	- .6	+23.3	+27.8	- 7.8	-1.9	+83.4	+83.7		

Compiled from "Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York," United States Department of Agriculture, Technical Bulletin No. 73 - June, 1928.

L/ Percentage change from the average corrected sales for the three days preceding and the three days following the holiday.

milk that is sold by them as fluid milk and the price the association receives for milk in other uses is, other factors being the same, the premium distributors are willing to pay for milk when such milk is furnished them in conformance with their daily needs.

Although there may be other factors that, in a particular market, also contribute to the development of a system of class prices, the foregoing treatment suffices to explain the more important considerations obtaining that, taken as a whole, lead to the development of class prices in most important milk markets.

Literature Cited

- Lininger, F. F., Pennsylvania State College, Agri. Exp. Station Bulletin No. 231.
- Ross, H. A., Cornell University, Agri. Exp. Station Bulletin No. 527.
- Ross, H. A., The Marketing of Milk in the Chicago Dairy District, Illinois Agri. Exp. Station Bulletin No. 269.
- Ross, H. A., Some Factors Affecting the Demand for Milk and Cream in the Metropolitan Area of New York, U. S. Dept. of Agri. Technical Bulletin No. 73.

A P P E N D I X

Table 17. Index numbers of seasonal variation in fluid milk sales by distributors purchasing from cooperative associations.

	Baltimore	Boston	Twin Cities
	Percent	Percent	Percent
January	97.7	96.9	98.8
February	98.6	97.6	101.0
March	100.2	98.6	101.4
April	100.4	97.2	101.8
May	103.1	99.5	99.5
June	101.4	102.8	98.1
July	99.0	106.8	98.0
August	96.4	103.1	99.1
September	100.5	100.5	100.1
October	103.0	100.4	102.5
November	101.0	100.7	101.7
December	98.7	95.9	98.0
Average	100.0	100.0	100.0

Index numbers were calculated by the median-link-relative method from data of fluid milk sales, omitting those months in which price changes occurred. For basic data used in computing the index for Baltimore see tables 17 and 18; for Boston, see tables 19 and 20; and for Twin Cities, see tables 21 and 22.

1/
Table 18. Fluid milk sales of Maryland State Dairymen's Association, December 1923-December 1931.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000
	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons	: gallons
1923	:	:	:	:	:	:	:	:	:	:	:	:	:
1924	1,171	1,207	1,230	1,237	1,262	1,254	1,262	1,287	1,313	1,367	1,368	1,348	1,275
1925	1,347	1,338	1,428	1,445	1,489	1,552	1,491	1,439	1,525	1,578	1,508	1,490	1,468
1926	1,476	1,489	1,517	1,530	1,592	1,570	1,539	1,490	1,544	1,582	1,510	1,481	1,525
1927	1,480	1,512	1,549	1,536	1,562	1,558	1,538	1,485	1,554	1,598	1,562	1,558	1,541
1928	1,527	1,549	1,571	1,549	1,596	1,562	1,517	1,481	1,506	1,575	1,555	1,514	1,542
1929	1,517	1,526	1,547	1,551	1,673	1,566	1,528	1,495	1,571	1,575	1,555	1,510	1,551
1930	1,497	1,507	1,543	1,534	1,592	1,561	1,517	1,493	1,587	1,469	1,509	1,465	1,523
1931	1,434	1,450	1,431	1,470	1,491	1,462	1,435	1,407	1,468	1,457	1,414	1,376	1,441

Compiled from "History of Maryland State Dairymen's Association," Appendix Table VI.

1/ Adjusted to 30 day month.

Table 19. Retail prices of milk per quart delivered in Baltimore, 1924-1931

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1924	13	13	13	13	13	13	13	13	13	13	13	13	13
1925	13	13	13	13	13	13	13	13	13	13	13	13	13
1926	13	13	13	13	13	13	13	13	13	14	14	14	13
1927	14	14	14	14	14	14	14	14	14	14	14	14	14
1928	14	14	14	14	14	14	14	14	14	14	14	14	14
1929	14	14	14	14	14	14	14	14	14	14	14	14	14
1930	14	14	14	14	14	14	14	14	14	14	14	14	14
1931	14	14	14	13	12	12	12	12	12	12	12	12	12

Compiled from reports of the United States Department of Labor, Bureau of Labor Statistics.

Table 20. Monthly fluid milk sales¹/by large dealers in Boston, 1922-1931.

Year:	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.	: Mil.
	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:	: pounds:
1922:	21.4	21.7	22.0	21.5	22.8	23.9	23.4	22.9	22.6	22.5	22.7	21.3	22.4
1923:	22.0	22.4	23.0	22.6	23.6	25.6	24.5	23.7	23.2	23.6	23.5	22.6	23.4
1924:	22.9	23.1	24.1	24.5	25.2	26.2	27.2	26.1	24.6	24.1	24.4	23.8	24.7
1925:	24.2	24.6	25.2	25.2	25.5	28.0	27.2	26.3	25.7	25.8	26.1	25.4	25.8
1926:	25.9	26.1	26.5	26.5	27.0	27.6	28.9	27.5	27.2	28.4	28.4	26.6	27.2
1927:	27.2	27.8	28.6	28.4	27.9	29.0	29.8	28.2	28.2	28.7	28.1	27.8	28.3
1928:	28.7	29.0	29.5	28.9	29.5	29.9	31.3	31.4	29.4	30.6	31.1	29.8	29.9
1929:	30.5	30.8	31.5	31.0	32.0	32.8	32.8	31.7	31.0	30.4	30.7	29.1	31.2
1930:	29.6	30.0	30.4	30.2	31.2	31.4	30.5	29.7	30.6	29.7	29.1	28.2	30.1
1931:	30.0	29.6	30.2	29.9	31.8	30.2	31.6	30.6	30.1	30.3	29.7	28.5	30.2

¹/ Adjusted to thirty-day month.

Data supplied by W. H. Bronson of the New England Milk Producers' Association.

Table 21. Retail prices of milk per quart delivered in Boston, 1922-1931.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
1922	13.5	13.5	13.5	12.5	12.5	12.5	13.5	13.5	13.5	14.5	14.5	14.5
1923	14.5	14.5	14.5	13.5	13.5	13.5	14.0	14.5	14.5	14.5	15.5	15.0
1924	14.5	13.5	12.5	12.0	12.0	12.0	12.5	13.5	14.5	14.5	14.5	14.5
1925	14.5	14.5	13.5	13.5	13.0	13.0	14.0	14.5	14.5	14.5	14.5	14.5
1926	14.5	14.5	14.5	14.5	14.5	13.5	14.5	14.5	14.5	14.5	14.5	14.0
1927	14.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	15.0	15.5	15.5	15.0
1928	16.0	15.5	15.5	14.5	14.5	14.5	14.5	15.5	15.5	15.5	15.5	15.5
1929	15.5	15.5	15.5	15.5	15.5	14.5	15.5	15.5	15.5	15.5	15.5	15.5
1930	15.5	15.5	15.5	15.5	14.5	14.5	14.5	15.5	15.5	15.5	15.5	13.5
1931	13.5	12.5	12.5	12.5	12.5	12.5	12.5	13.5	13.5	13.5	13.5	10.0
Data supplied by J. H. Bronson of the New England Milk Producers' Association.												

Note: During the period April 1, 1923 to September 4, 1927 some dealer's prices were 1/2 cent higher than the prices indicated above.

Table 22. Fluid milk sales l/ to distributors by Twin City Milk Producers' Association, 1924-1932.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000	: 000
	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds
1924	11,098	11,541	11,279	11,876	11,720	11,814	11,871	11,799	11,788	12,318	12,225	11,843
1925	11,958	12,265	12,572	12,710	11,720	12,572	12,210	12,570	13,052	12,492	12,421	11,861
1926	12,079	12,178	12,246	12,331	12,522	12,170	12,004	11,990	11,988	12,368	12,293	12,002
1927	12,246	12,485	13,775	12,474	12,005	11,912	11,769	12,111	12,737	12,438	12,608	12,100
1928	12,480	12,634	12,782	12,729	12,918	12,238	12,270	12,436	12,439	13,607	13,406	12,644
1929	12,785	12,942	12,968	13,086	12,820	12,437	12,432	12,684	13,053	13,495	13,433	12,980
1930	13,256	13,571	13,648	13,646	13,119	13,004	13,142	13,097	13,346	13,543	13,487	12,860
1931	12,961	13,277	13,201	13,268	13,821	12,842	12,993	12,162	12,568	12,808	12,724	12,065
1932	12,203	12,543	12,543	12,724	12,288	12,534	12,571	12,717	12,771	12,612	12,093	11,862

Computed from data in National Cooperative Milk Producers' Federation, History Series No. 7. "Twin City Milk Producers' Association." Appendix Table IV.

l/ Adjusted to 30-day month.

Table 23. Retail prices of milk per quart
in Twin Cities, 1924-1932.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	: Cents	: Cents	: Cents	: Cents	: Cents	: Cents	: Cents	: Cents	: Cents	: Cents	: Cents	: Cents
1924	11-12	11-12	11-12	10	10	10	10	11	11	11	11	11
1925	11	11	11	11	11	11	11	11	12	12	12	12
1926	11-12	11	11	11	11	11	11	11	11	11	11-10-11	
1927	10-11	11	11	11	11	11	11	11-11-12	12	12	12	12
1928	12	12	12	12	12	12	12	12	12	12	12	12
1929	12	12	12	12	12	12	12	12	12	12	12	12
1930	11	11	11	11	11	11	11	11	11	11-10-11	10	
1931	10	10	10	10	10	10	10	10	10	10	10	9-10
1932	8-9	8-9	8-9	8-9	8-9	8-9	8-9	8	8	8	8	8
Data supplied by Twin City Milk Producers' Association.												

1/ In the discussion in the text of this paper the reported change in price during December 1926 and January 1927 was not considered. The Bureau of Labor Statistics reported no change in the price for these months for St. Paul and no change occurred in prices paid to producers.

Table 24. Sales and retail prices of fluid milk in the Boston Sales Area.

Year and month	Class I sales of milk	Milk reported as percent of estimated total sales	Estimated Class I sales	Estimated average daily Class I sales	Retail price delivered per quart	Retail price store per quart	Class I price per cwt. of 3.7% milk f.o.b. City
	000 lbs.	Percent	000 lbs.	000 lbs.	Cents	Cents	Dollars
1934							
April	41,349	89.5	46,190	1,540	11	10	2.95
May	44,599	89.0	50,111	1,616	11	10	2.95
June	43,632	89.5	48,751	1,625	11	10	2.95
July	48,117	89.5	53,762	1,734	11	10	2.95
August	44,735	90.0	49,706	1,603	11	10	2.95
September	42,847	90.0	47,608	1,587	11	10	2.95
October	44,729	90.0	49,699	1,603	12	11	3.26
November	43,482	88.5	49,132	1,638	12	11	3.26
December	42,698	88.0	48,520	1,565	12	11	3.26
1935							
January	43,207	88.0	49,099	1,584	12	11	3.26
February	38,231	87.0	43,944	1,569	12	11	3.30
March	42,573	86.0	49,503	1,597	13	12	3.49
April	40,122	86.0	46,653	1,555	13	12	3.49
April to September				1,618	11		
October to February				1,592	12		
% change				-1.6	+9.1		
March and April				1,576	13		
% change				-1.0	+8.3		

Sales and Class I price compiled from reports of Market Administrator.
 Retail prices compiled from reports of U. S. Department of Agriculture Market News Service.

Table 25. Sales and retail prices of fluid milk in the Detroit Sales Area.

Year and month	Milk								Class
	Class I	reported	Estimated	Estimated	Daily	Retail	Retail	price	
	sales	as percent	total	average	sales	delivered	store	per cwt	
	of milk	of esti-	Class I	daily	for sea-	price	price	of 3.5	
	total sales:	mated	sales	Class I	sonal Va-	per	per	milk	
	000 lbs.	Percent	000 lbs.	000 lbs.	000 lbs.	Cents	Cents	Dollar	
1934									
April	35,448	90	39,387	1,313	1,275	10	10	2.02	
May	37,853	98	38,626	1,246	1,217	10	10	2.02	
June	35,957	99	36,320	1,211	1,172	10	10	2.15	
July	35,496	98	36,220	1,168	1,180	11	11	2.25	
August	34,344	98	35,045	1,130	1,137	11	11	2.25	
September	33,731	97	34,774	1,159	1,175	11	11	2.25	
October	34,776	98	35,486	1,145	1,128	11	11	2.25	
November	33,419	98	34,101	1,170	1,195	11	11	2.38	
December	33,671	98	34,358	1,108	1,143	11	11	2.27	
1935									
January	34,804	95	36,636	1,182	1,231	11	11	2.25	
February	31,948	98	32,600	1,141	1,146	11	11	2.40	
March	35,868	98	36,600	1,181	1,153	12	12	2.48	
April to June				1,257	1,221	10			
July to February				1,150	1,167	11			
% change				-8.5	-4.4	+10.0			
March				1,181	1,153	12			
% change				+2.7	-1.2	+9.1			

Sales and Class I price: Compiled from reports of Market Administrator.

Retail prices: Compiled from reports of the United States Department of Agriculture Market News Service.

1/ See test for index used.

Table 26. Sales and retail prices of fluid milk
in the Evansville Sales Area.

Year and month	: :Class I :sales of :butter- :fat : :	:Milk re- :ported as :percent of :estimated :total :sales :	: :Class I :sales of :butterfat : :	:Estimated :average :daily :Class I :sales of :milk :equivalent:	:Retail: :deliv- :ered :price :per :quart :	:Retail: :store :price :per :quart :	:Class I :price :per :pound :butterfat :f.o.b. :city
	: :Pounds :	: :Percent :	: :Pounds :	: :Pounds :	: :Cents :	: :Cents :	: :Cents :
1934							
March	: 55,017	: 90	: 61,130	: 51,893	: 8.32	: 8.2	: 48
April	: 47,589	: 90	: 52,877	: 46,383	: 9	: 9	: 48
May	: 46,979	: 87	: 53,999	: 45,840	: 9	: 9	: 48
June	: 46,210	: 85	: 54,365	: 47,689	: 9	: 8-9	: 48
July	: 47,767	: 95	: 50,281	: 42,683	: 9	: 8-9	: 48
August	: 45,008	: 90	: 50,009	: 42,452	: 9	: 8-9	: 48
September	: 40,557	: 88.6	: 45,775	: 40,154	: 9	: 8-9	: 48
October	: 42,407	: 87	: 48,744	: 41,404	: 9.5	: 9-10	: 48
November	: 41,153	: 89	: 46,239	: 40,561	: 9.5	: 9-10	: 51.5
December	: 41,184	: 88	: 46,800	: 39,728	: 9.5	: 9-10	: 53
1935							
January	: 43,351	: 90	: 48,168	: 40,890	: 9.5	: 9-10	: 53
February	: 40,059	: 88	: 45,522	: 42,784	: 9.5	: 9-10	: 53
March	: 45,090	: 89	: 50,663	: 44,441	: 9.5	: 9-10	: 53
May to Sept.	: :	: :	: :	: 45,764	: 9	: :	: :
Oct. to Mar.	: :	: :	: :	: 41,635	: 9.5	: :	: :
Percent change	: :	: :	: :	: -4.9	: + 5.6	: :	: :

NOTE: Percentage changes from March sales and prices were not calculated since sales during that month appear to have been unduly high.

Sales and Class I prices: Compiled from reports of Market Administrator.
Retail prices: Compiled from reports of the United States Department of
Agriculture Market News Service.

Table 27. - Sales and retail prices of fluid milk in the Grand Rapids Sales Area.

Year and month:	Class I sales of milk	Milk report- ed as per- cent of es- timated to- tal Class I Sales	Estimated total Class I Sales	Estimated daily Class I sales	Retail: store price per quart f.o.b.	Class I price per cwt. of 3.5% milk
	Pounds	Percent	Pounds	Pounds	Cents	Cents
1934						
August	3,850,687	97.9	3,933,286	126,880	9	9.0
September	3,809,520	99.7	3,820,983	127,366	9	9.5
October	3,920,693	99.0	3,960,296	127,751	10	10.0
November	3,758,861	99.0	3,796,829	126,561	10	10.0
December	3,848,021	99.6	3,863,475	124,628	10	10.0
1935						
January	3,906,824	99.0	3,946,287	127,300	10	10.0
February	3,575,805	99.0	3,611,924	128,997	10	10.0
March	3,928,662	99.0	3,968,345	128,011	10	10.0
August & September						
October to March				127,123	9	
% Change				127,208	10	
					+ 11.1	

Sales and Class I price compiled from Reports of Market Administrator.
Retail prices compiled from reports of U. S. Department of Agriculture Market News Service

Table 28. Sales and retail prices of fluid milk
in the Kalamazoo Sales Area

Year and month	:Class I :Sales of :Milk	:Milk re- :ported as: :percent :of estima- :ted total: :Class I :Sales	:Estimated :as total :Class I :Sales	:Estima- :ted av- :erage :daily :Class :I :Sales	:Retail :deliv- :ered :and :store :prices :per qt.	:Class I :price per :cwt. of :3.5% milk :f.o.b. :City
	:Pounds	:Percent	:Pounds	:Pounds	:Cents	: Dollars
<u>1934</u>						
July	: 1,236,034:	98	:1,261,259	:40,686:	10	: 1.85
August	: 1,053,642:	98	:1,075,145	:34,682:	10	: 1.85
Sept.	: 1,043,354:	98	:1,064,647	:35,488:	10	: 1.85
October	: 1,078,968:	98	:1,100,987	:35,516:	10	: 1.85
November	: 1,062,866:	95	:1,118,806	:37,294:	10	: 1.85
December	: 1,145,373:	95	:1,205,656	:38,892:	8	: 1.85
<u>1935</u>						
January	: 1,211,198:	97	:1,274,945	:41,127:	8	: 1.85
February	: 1,144,550:	98	:1,179,948	:42,141:	8	: 1.85
March	: 1,196,868:	95	:1,281,294	:39,397:	10	: 2.00
July to	:	:	:	:	:	:
November:	:	:	:	:36,733:	10	:
December:	:	:	:	:	:	:
to Feb.:	:	:	:	:40,720:	8	:
%Change	:	:	:	:+ 10.9:	-20.0	:
March	:	:	:	:39,397:	10	:
% Change:	:	:	:	: -3.2:	+ 25.0	:

Sales and Class I Prices compiled from reports of Market Administrator.
Retail prices compiled from reports of U. S. Department of Agriculture
Market News Service.

Table 29. Sales and retail prices of fluid milk in the St. Louis Sales Area.

Year and month	:Class I :sales :of milk :	:Milk re- :ported as :percent of :estimated :total Class :I sales :	:Estimated :total :Class I :sales :	:Estimated :average :daily :Class I :sales :	:Index :of av- :erage :daily :Class I :sales :	:Retail :delivered price :per quart :	:Class I :price :per cwt. :of 3.5% :milk :f.o.b. :city :
	: 000 Lbs. :	: Percent :	: 000 Lbs. :	: 000 Lbs. :	: Per- : cent :	: Cents :	: Dollars :
<u>1934</u>							
April	: 16,824 :	: 99.8 :	: 16,858 :	: 562 :	: 102 :	: 11 :	: 1.85 :
May	: 18,091 :	: 100.0 :	: 18,091 :	: 584 :	: 106 :	: 11 :	: 1.85 :
June	: 17,928 :	: 100.0 :	: 17,928 :	: 598 :	: 109 :	: 11 :	: 2.00 :
July	: 18,229 :	: 99.7 :	: 18,284 :	: 590 :	: 107 :	: 11 :	: 2.00 :
August	: 17,482 :	: 99.8 :	: 17,517 :	: 565 :	: 102 :	: 11 :	: 2.20 :
September	: 16,167 :	: 99.7 :	: 16,216 :	: 541 :	: 98 :	: 11 :	: 2.35 :
October	: 16,923 :	: 99.5 :	: 17,008 :	: 549 :	: 99 :	: 11 :	: 2.35 :
November	: 15,676 :	: 97.9 :	: 16,012 :	: 534 :	: 97 :	: 11 :	: 2.18 :
December	: 15,769 :	: 99.8 :	: 15,801 :	: 510 :	: 92 :	: 11 :	: 2.00 :
<u>1935</u>							
January	: 15,952 :	: 99.6 :	: 16,016 :	: 517 :	: 94 :	: 11 :	: 2.00 :
February	: 14,709 :	: 99.5 :	: 14,783 :	: 528 :	: 96 :	: 11 :	: 2.00 :
March	: 16,783 :	: 99.9 :	: 16,800 :	: 542 :	: 98 :	: 11 :	: 2.22 :
Average				: 552 :	: 100 :		

Sales and Class I prices: Compiled from Reports of Market Administrator.

Retail prices: Compiled from reports of the United States Department of Agriculture Market News Service.

A P P E N D I X B

D-1

Outline of Plans Used to Adjust Basic Amounts
by
The Maryland and Virginia Milk Producers' Ass'n, Inc.

1. Prior to October 1, 1928, bases were set each year on the basis of 100 percent of preceding fall months' average production.

2. On October 1, 1928, permanent basic quantities were established for all members on the basis of 90 percent of their average monthly production of the fall periods of 1925, 1926, and 1927.

This total basic allotment was the approximate amount of Class I sales at that time.

3. In the fall periods of 1928, 1929, and 1930, if production was such that the new shipper basis increased the established basic amount, the producer was given the new shipper basis. This plan increased the bases of 650 producers and added 2,791 gallons per day to the total basic during this three-year period.

Due to the abnormal increase in production of many shippers as indicated by the number taking the new shipper basis, it was found not to be equitable to producers who made deliveries in accordance with market conditions.

4. August 1, 1930, those producers whose shipments during the fall of 1929 were in excess of 110 percent of their basic quantity were given an increase of 20 percent of this excess. This added to the market approximately 10,000 gallons of basic per month and increased the basic amounts of 606 producers. This was an increase of about 330 gallons per day or a .76 percent increase.

This increase was allowed in an effort to increase the basic amounts of the producers carrying the lower percentages of basic amounts.

5. May 1, 1933, basic amounts were reduced 10 percent if the percentage of surplus shipped during 1929, 1930, and 1931 was less than 35 percent and between 35 percent and 40 percent, a reduction of 8 percent. If the percentage of surplus was 40 percent or over, no cut was made.

It was found at this time that allotted basic amounts were considerably above fluid milk sales due to a decline of consumption. For example, Class I sales in April 1933 were 11.8 percent less than the corresponding month in 1932 in relation to basic purchases.

On this plan, 806 producers received a 10 percent cut and 104 received an 8 percent cut; 214 producers did not receive a cut, 72 of which were new producers and 142 were old producers with 40 percent surplus or over in 1929, 1930, and 1931. This reduced basic amounts approximately 80,000 gallons per month or about 2,660 gallons per day, which was a 6.6 percent decrease for the market.

6. January 1, 1934, if the established basic quantity was less than 72 percent of the average monthly fall shipments of 1930 and 1931, the basic quantity was increased up to 72 percent of these two falls' average monthly production. At this same time the new shippers of 1931 were increased from 50 percent to 60 percent of their fall production of 1931, and the new shippers of 1932 were increased from 40 percent to 50 percent of their fall production of 1932.

After a thorough study of the basic amount situation, it was found that steps should be taken to increase the basic amounts of some producers who were carrying above the average percentage of surplus. The above plan was adopted to correct this condition.

This change increased the basic amount of 587 old producers and 56 new producers and added 91,896 gallons of basic per month, or about 3,063 gallons of basic per day, to the market. This was about an 8.6 percent increase in basic amounts.

7. January 1, 1935, producers were increased to 72 percent of their 1933 fall shipments with a 20 percent limitation on fall months' production from 1930 --1931 to 1933. New producers of 1931 were raised from 60 percent to 68 percent of their 1933 fall shipments with a 20 percent limitation on fall months' production from 1931 to 1933. New producers of 1932 were raised from 50 percent to 64 percent of their 1933 fall shipments with a 10 percent limitation on fall months production from 1932 to 1933.

This plan increased the basic of 239 old producers and 24 new producers, adding 25,907 gallons of basic per month, or 2.0 percent, to the total basic.

This plan was a continuation of effort to bring about a more equitable distribution of basic amounts. It was found that, due to changes of production on individual farms and increases in production by some producers, basic amounts were in need of further adjustment and the above plan was adopted as a means of accomplishing this purpose.

8. July 1, 1935, new producers of 1933 were raised from 40 percent of their 1933 fall shipments to 56 percent of their 1934 fall shipments, with a 10 percent limitation on fall months' production from 1933 to 1934. This change increased the basic of 10 producers, adding 1,732 gallons of basic per month, or 00.13 percent, to the total basic.

This plan was adopted upon recommendation by the Adjustment Committee which studied the new shipper problem thoroughly, due to the feeling that in the previous plan, outlined in paragraph 7, the new shipper of 1933 was entitled to further adjustment.

9. March 1, 1934, and continuing until April 30, 1935, the association paid the basic price for 95 percent of established basic amounts. May 1, 1935, this percentage was raised to 97 percent. The percentage remained at 97 percent for June, July, and August.

10. Effective September 1, 1935.

- A. Producers who established their base prior to the fall of 1933;
(To receive one of the following, whichever results in a higher base.)
 - 1. 69 percent of the 1934 fall months' average production with a limitation of 20 percent on increases in fall production from the falls of 1930-31 to 1934 or from the fall of 1933 to 1934, whichever is better for the producer.
 - 2. Return 5 percent to the basic quantity held May 1, 1933, where cut was made at that time.
- B. Producers who established their base in the fall of 1933;
1--60 percent of their fall months' average production.
- C. Producers who established their base in the fall of 1934;
1--50 percent of their 1934 fall months' average production with a limitation of 1.2 gallons basic per stall per day.

The above plan was a continuation of a constant study and effort of the association to keep basic amounts equitably distributed. This plan increased the basic of 574 old producers and 24 new producers. Of the 574 old producers benefiting, 321 received an increase by virtue of returning 5 percent to the basic held May 1, 1933; the remaining 253 benefit by reason of receiving 69 percent of their average 1934 fall shipments. The limitation provision affects 71 producers.

The above plan added 45,924 gallons of basic per month, or 1,510 gallons per day, or 3.4 percent, to the total basic.

This plan was also adopted, as others were, to keep the basic amounts equitably distributed as fairly as possible to all producers.

11. September 1935 the percentage of allotted basic amounts paid for at basic price was 90 percent, and for October, November, and December, 92 percent. These percentages were set in order that the amount of milk paid for at basic price might as closely as possible conform with fluid milk sales.

12. In accordance with a resolution passed by the Board of Directors, it is necessary for all producers to deliver during the three fall months of 1935 (October, November, and December) an average of 100 percent or more of their 100 percent allocated base in order to maintain their base. Producers whose average deliveries during October, November,

and December of 1935 are under their existing 100 percent allocated base, will receive, January 1, 1936, a 100 percent base equal to their average deliveries during this period.

Allowance was made for producers losing cows due to Bang's on Government tests only.

Under the above requirement 121 producers received a decrease in 100 percent base January 1, 1936, by reason of shipping under their 100 percent base during the fall of 1935. A total of 151 producers shipped under their 100 percent base, but 30 were completely exempted from loss of base on the grounds of Government Bang's tests. Of the 121 who lost base 5 producers received some allowance for loss of cows due to Bang's. The total 100 percent basic on the market was reduced 14,000 gallons, or 1.0 percent, by this action.

13. Effective March 1, 1936.

- A. Producers who established their base prior to the fall of 1934:
(To receive as a 100 percent base one of the following, whichever is greater.)
 - 1. Seventy-five percent of the average monthly production during October, November, and December of 1935, but in no case is this new base to be greater than 25 percent over and above the existing base.
 - 2. The existing 100 percent base.
- B. Producers who established their average in the fall of 1934 to receive as 100 percent base 65 percent of their average monthly production during October, November, and December of 1935, with a limitation of 1.2 gallons per stall per day and provided that the new base is not more than 25 percent over and above the old base.

This adjustment increased the 100 percent basis of 400 old producers and 1 new producer, adding 65,000 gallons, or 4.8 percent, of basic to the market. This increase in the total basic necessitated a reduction in the percent of 100 percent basic for which the basic price was paid from 92 percent to 88 percent.

On the basis of this 4 percent reduction in payment base, of the 401 producers receiving an increase in 100 percent base only 334 producers actually received an increase in payment, there being 67 producers who received an increase in 100 percent base that was less than 4.0 percent.

Outline of Plans Used to Establish
Basic Quantities for New Producers

A. Producers just beginning to ship.

(It has always been the policy of the association to pay basic price for a percentage of each month's deliveries prior to the fall period, raising this percentage with the beginning of the fall period, and establishing a fixed quantity on January 1 based upon same percentage as used during the fall period.)

Year	Prior to fall period	During fall period
1926	50%	100%
1927	50%	100%
1928	50%	70%
1929	50%	60%
1930	40%	60%
1931	30%	50%
1932	30%	40%*(4 months)
1933	30%	40%*
1934	25%	40%*
1935	40%	50%*
1936	40%	Not yet determined

*Established quantity allocated January 1 limited to 1.2 gallons per day per stall.

B. Producers who began shipping at least one year prior to effective date of any general basic adjustment.

1. Prior to January 1, 1934, such producers were classified as old producers.
2. January 1, 1934:
 - (a) New producers of 1932:
Increased from 40 percent to 50 percent of their 1932 fall production.
 - (b) New producers of 1931:
Increased from 50 percent to 60 percent of their 1931 fall production.
3. January 1, 1935:
 - (a) New producers of 1932:
Increased to 64 percent of their 1933 fall production with a 10 percent limitation on fall production from 1932 to 1933.
 - (b) New producers of 1931:
Increased to 68 percent of their 1933 fall production with a limitation of 20 percent on fall production from 1931 to 1933.

4. July 1, 1935:
 - (a) New producers of 1933:
Raised from 40 percent of their 1933 fall shipments to 56 percent of their 1934 fall shipments with a 10 percent limitation on fall production from 1933 to 1934.
5. September 1, 1935:
 - (a) New producers of 1934:
Raised from 40 percent to 50 percent of their 1934 fall production with a 1.2 gallon per stall per day limitation.
 - (b) New producers of 1933:
Raised from 56 percent to 60 percent of 1934 fall without limitation.
6. March 1, 1936:
 - (a) New producers of 1934:
Raised from 50 percent of 1934 fall to 65 percent of fall of 1935, with a 1.2 gallon per stall per day limitation.
 - (b) New producers of 1933:
Raised on par with old producers.